

# ULTRA R2

## MBX



### SAFETY PRECAUTIONS

This radio control model is not a toy!

- First builders should seek advice from people having building experience in order to assemble the model correctly and to produce its performance to full extent.
- Assemble this kit only in places out of children's reach!
- Take enough safety precautions prior to operating this model. You are responsible for this model's assembly and safe operation!
- Always keep this instruction manual ready at hand for quick reference, even after completing the assembly.



### INSTRUCTION MANUAL

PLEASE READ INSTRUCTIONS CAREFULLY BEFORE ASSEMBLING  
THIS MODEL.

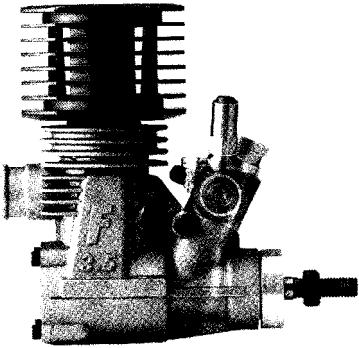
KEEP THIS MANUAL FOR PARTS NUMBERS WHEN ORDERING.

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

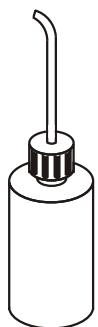
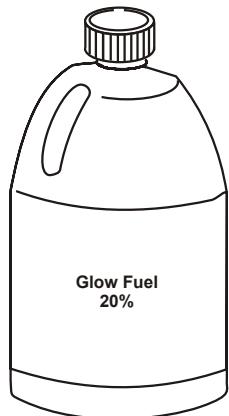
# REQUIRED FOR OPERATION

## THINGS NEED BESIDES THE KIT

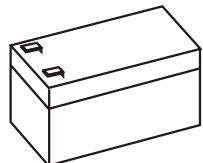
### 3.5 cc (21 Class) ENGINE REAR EXHAUST



Note: The engine may not include in kit.



Bottle's with spout  
# 10160 - large 500cc  
# 10161 - large 500 ccAuto Stop  
# 10162 - small 250cc  
# 10164 - CNC spout 500CC

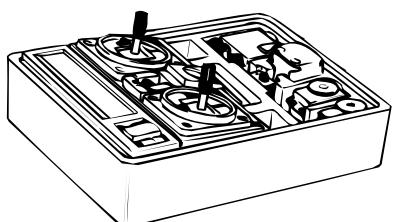


12V Battery for Starter Box  
(must have)

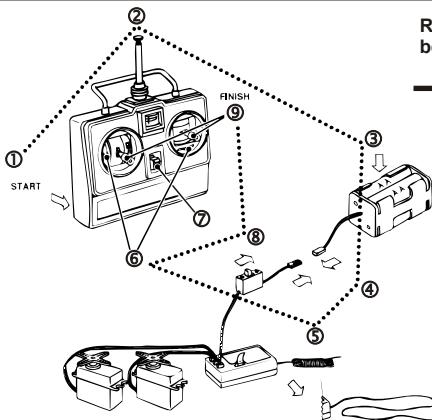


AA Batteries ( 12 pcs ) for radio

## RADIO CONTROL UNIT



Note: Careful read the instruction manual of your 2 channel radio controller before using.

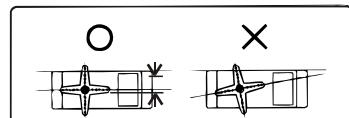
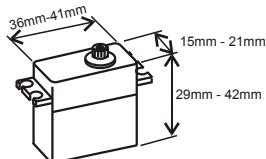


Radio must be set at neutral position  
before installing in the kit.

### SEQUENCE TO SET NEUTRAL

- ① Install AA batteries in Radio.
- ② Extend the antenna.(Transmitter)
- ③ Install batteries into Car receiver .
- ④ After installing the battery, connect the battery box.
- ⑤ Extend the antenna. (Receiver)
- ⑥ Set the trim-leved at center.
- ⑦ Turn on the switch. (Transmitter)
- ⑧ Turn on the switch. (Receiver)
- ⑨ Make sure the servos are in command.
- ⑩ When the operation stick is in neutral, servo horns must be in neutral as will.  
\*Adjustment can be made by re-installing the servo horn.
- ⑪ Turn off the switch. (Receiver)
- ⑫ Turn off the switch. (Transmitter)
- ⑬ Retract the antenna. (Transmitter)

## SUITABLE SERVO SIZE



### More Optional Parts ...

#10211 NiHm Battery Flat Pack .. \$29.95



# 10214 NiHm Battery Pack Charger.. \$7.95



OFNA/Picoo Glow Plug .. \$4.95



## TOOLS NOT INCLUDED IN KIT



Phillips Type Screw Drivers ( L )



Phillips Type Screw Drivers ( S )



Needle Nose Pliers



Knife



Curved Scissors

Brush

Cross Wrench #17109 \$3.95



Glow Plug & 17MM Cross Wrench #10801 \$6.95

Instant Cement



Masking Tape



Paints



Grease

## INCLUDED WITH KIT



Shock Oil



1.5mm Allen Wrench



2.5mm Allen Wrench



Grease Box

# READ THIS BEFORE RUNNING

Running a nitro kit is fun and easy, but to make this a safe and good experience you must observe a few rules. This kit is extremely fast, easily over 40MPH, and can seriously injure someone if you are not careful.

## **Where to run car?**

- Any running area you choose must be dry. Do not run car near any water or wet dirt.
- Do not run on public streets. It is very easy to have the car run over or damaged by hitting the curb.
- Do not operate car in tight confined places. The car is very fast and will easily hit something.
- Do not run near people or animals. The car is very fast and will too easily hit someone.
- Due noise, you will want to consider the surrounding area when operating the car.
- Do not operate the car at night. You will not be able to drive it without hitting something.
- Do not operate the car indoors. Engine exhaust is not healthy.

## **Glow Fuel**

- Glow fuel is poisonous!
- Glow fuel is flammable!
- Do not leave in fuel bottle with lid off at any time.
- Do not use any fuel other than glow fuel in this engine.

## **First Time Starting the Engine**

Caution! When starting engine make sure the following is observed.

- Set engine Master needle to 3 turns (rich setting)
- Do not do this alone, get an experienced friend to help at first.
- Fill fuel tank, try not to spill fuel. Do not spill fuel on receiver
- Hold car off the ground, so it will not runaway when first starts
- Turn on Radio and check the linkage before starting engine.
- Turn on car receiver battery switch.
- Always have an air filter on the carburetor to keep dirt out.

## **Engine Break-in**

- See Engine Page.

## **Emergency Stopping Engine When Running**

- Remove air filter and cover carb. intake.
- Squeeze fuel line and hold until engine stops.
- With a rag, cover exhaust outlet.

## **Storing Car After Running**

- Remove fuel from tank and fuel lines
- Turn off radio in car
- Put a few drops of after run in engine to keep it from

rusting.

- Clear oil and dirt from chassis with a degreaser.

## **Precautions**

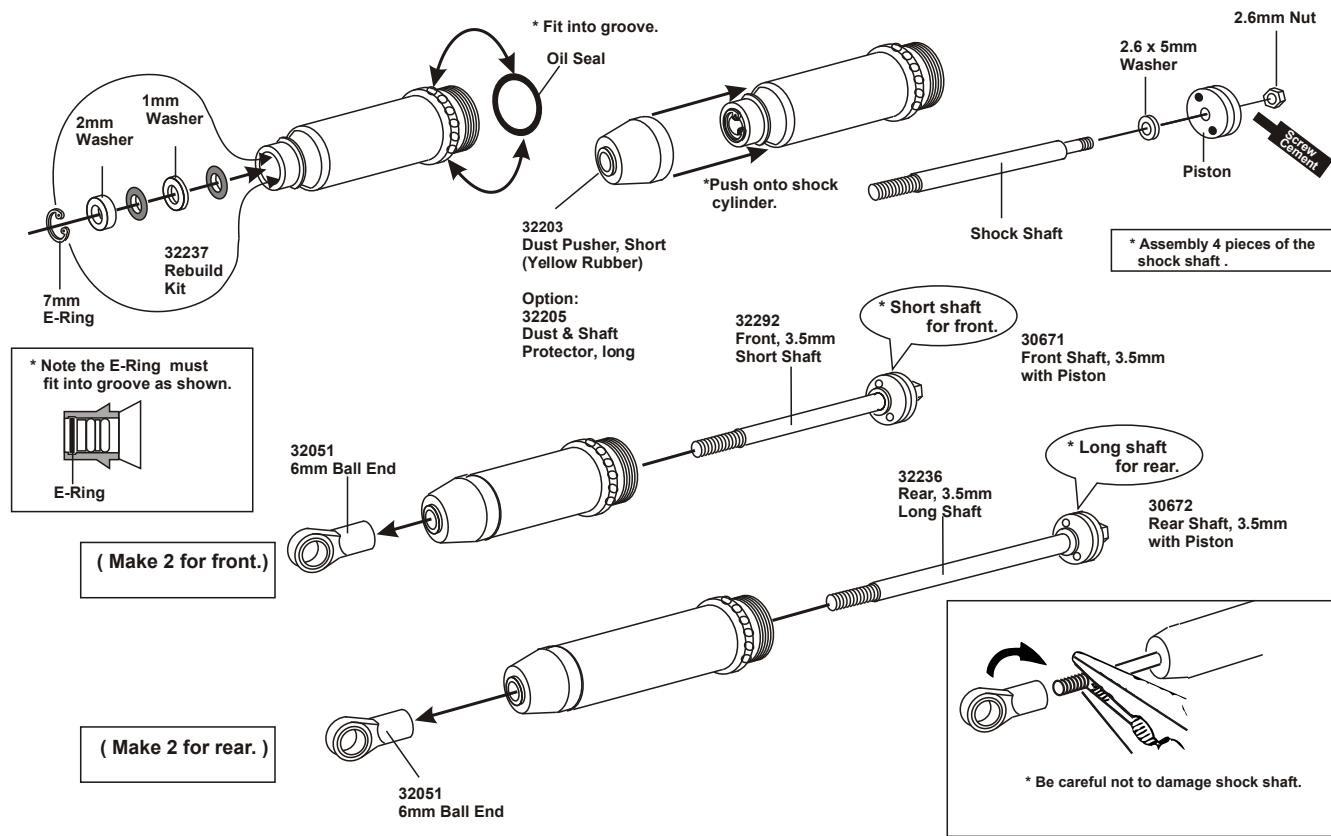
- This kit is not a toy. Always run car with a second person as a spotter and pitman.
- Hot Parts - The pipe, manifold, engine and head are very hot and will cause burns.
- Rotating Parts - Keep hands away from the drive train, wheels, and engine when engine is running.
- Radio - Check batteries life before running the car. If radio does not have full control of the car with steering and/or throttle/brake do not run until corrected. Failure to correct this will result in possible injury and damage to the car or property.
- Glow fuel - Do leave the glow fuel unattended with the lid off. Fuel contains Methanol and Nitro Methane and is flammable and poisonous.

Store fuel in cool ventilated location. Refer the glow fuel label for additional precautions.

- Car Fuel tank - Never store fuel in car tank, it will ruin the engine if left in tank.
- Always turn off the car BEFORE turning off radio.
- DAMAGE DUE CAR RUN AWAY IS NOT A WARRANTY ISSUE.

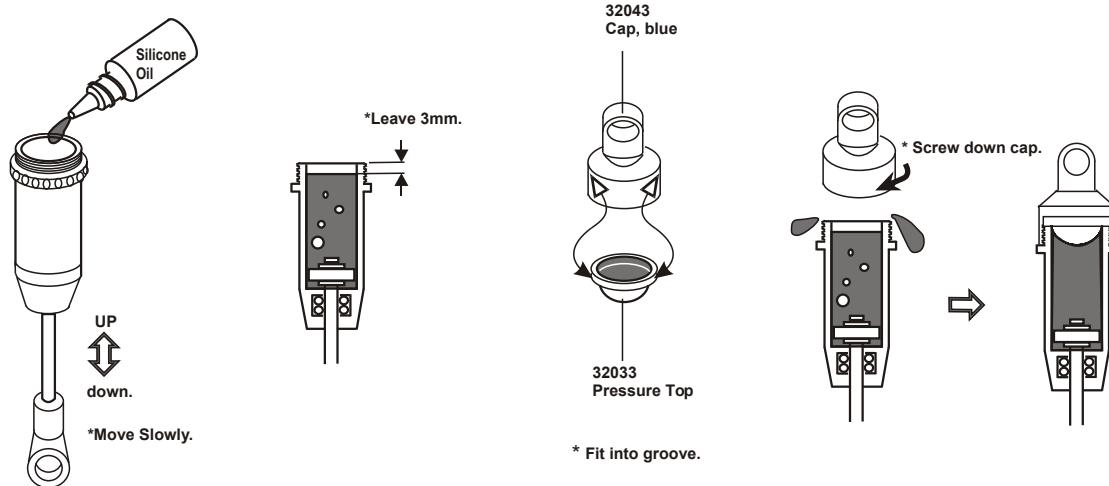
**IF YOU DO NOT BREAK-IN ENGINE  
CORRECTLY, MAINLY AT LOW RPM,  
YOU WILL BREAK THE CONNECTING  
ROD!**

## SHOCK ASSEMBLY

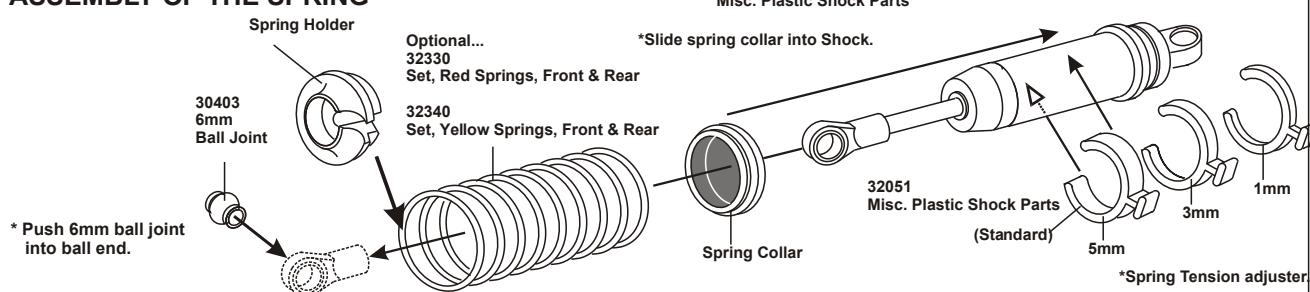


## FILLING THE SHOCKS WITH OIL

1. Pull down piston and pour oil into shock cylinder. Remove air bubbles by slowly moving piston up and down.
2. Pull down piston, attach pressure top and shock oil overflow with tissue paper.
3. Tighten up shock cap.



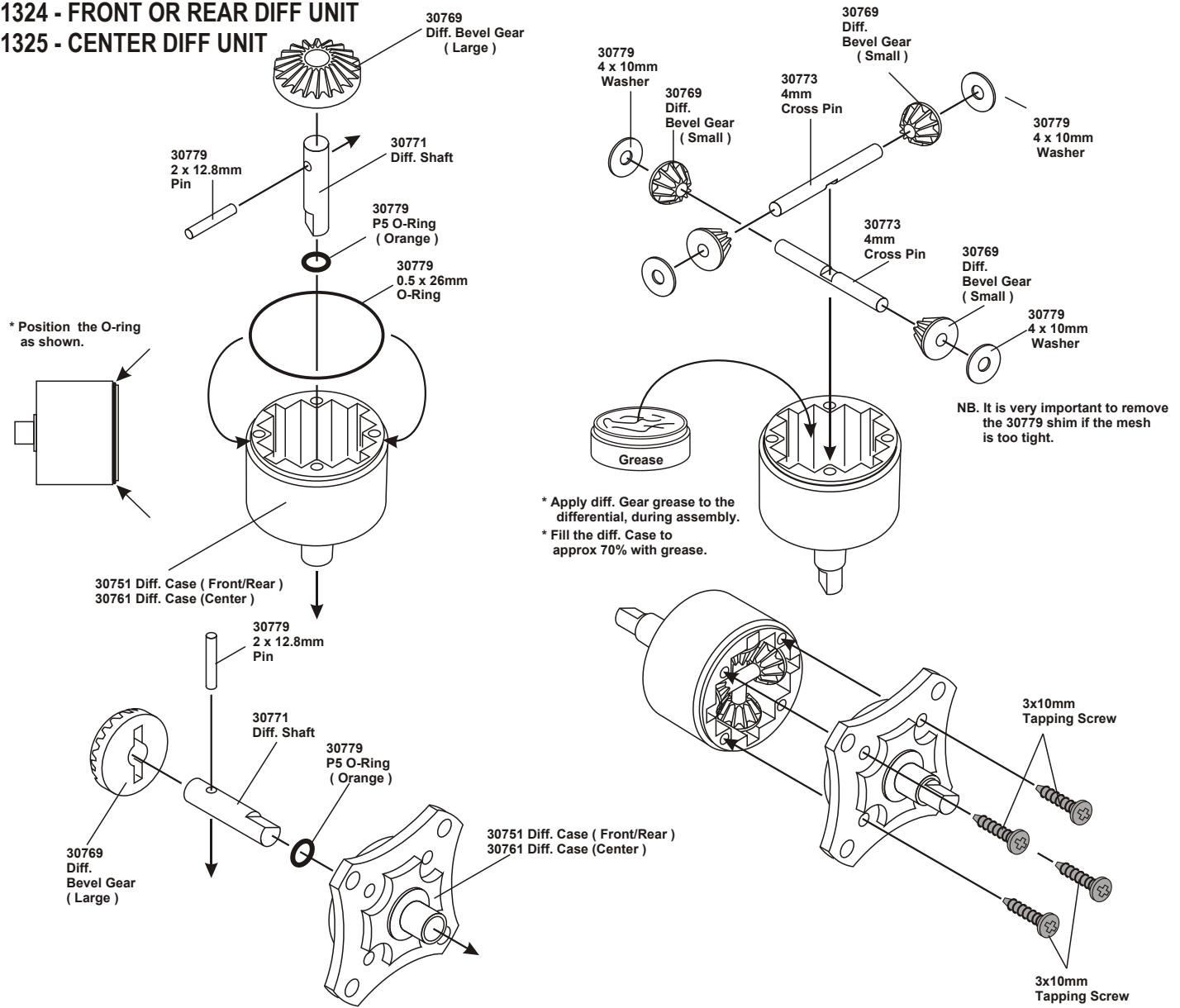
## ASSEMBLY OF THE SPRING



# ASSEMBLY OF NEW "K" STYLE DIFFERENTIAL CASE AND GEARS

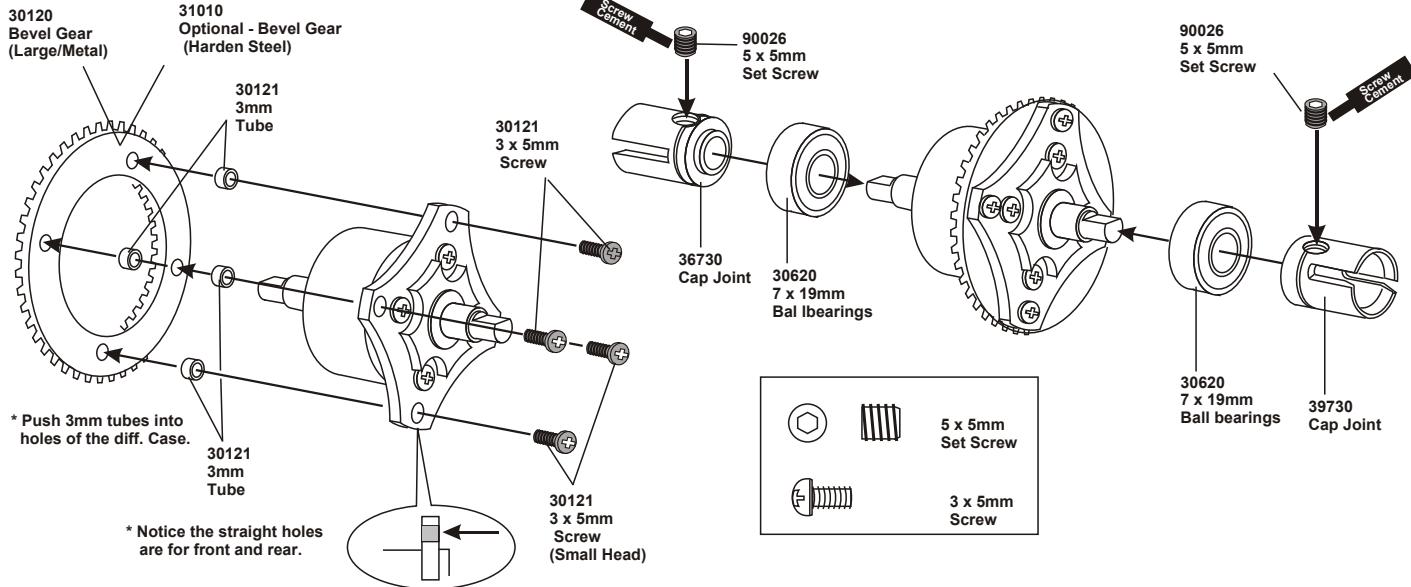
## 31324 - FRONT OR REAR DIFF UNIT

## 31325 - CENTER DIFF UNIT

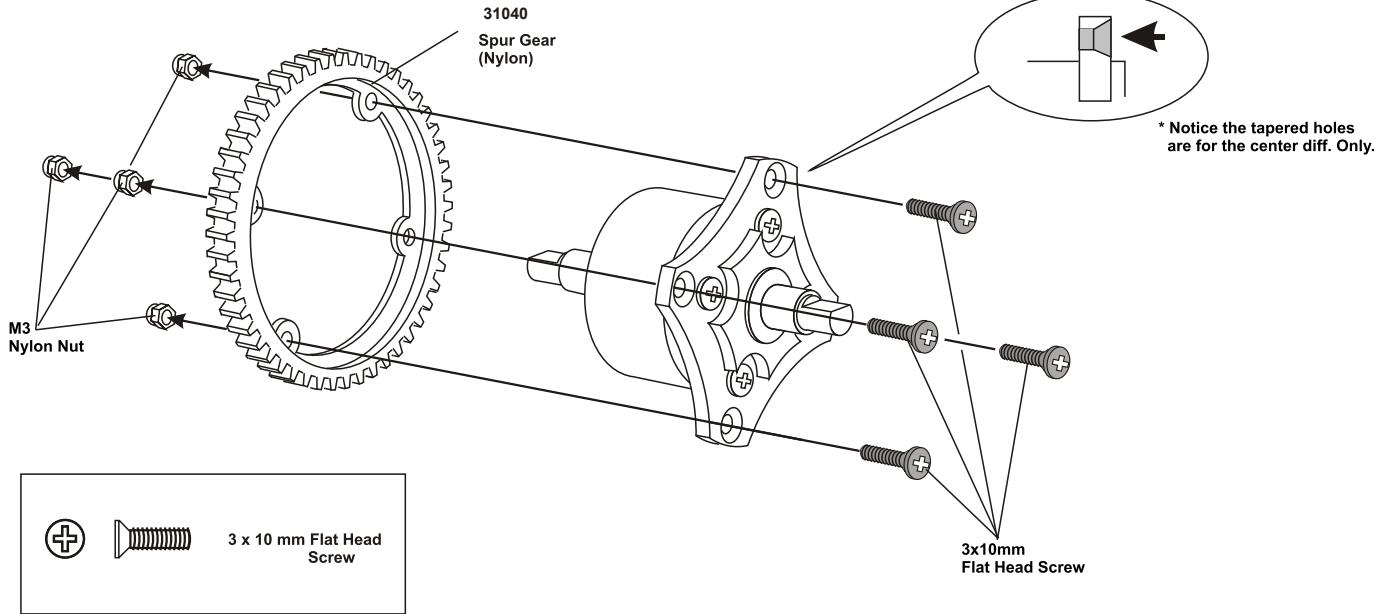


## ASSEMBLY OF THE BEVEL GEAR

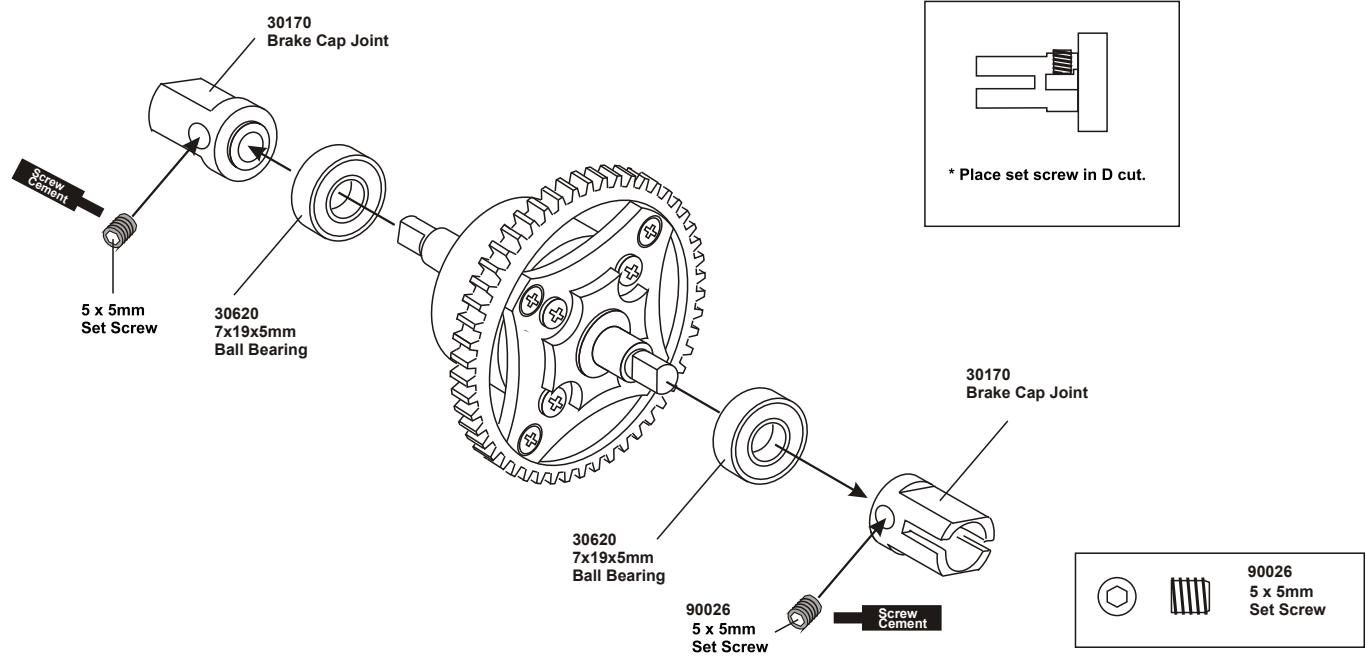
(Builds two differentials for front and rear.)



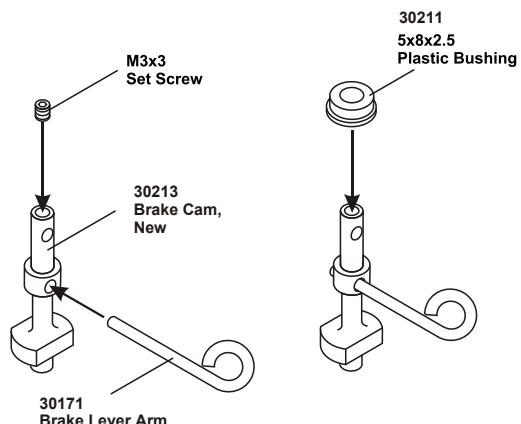
## ASSEMBLY OF THE SPUR GEAR



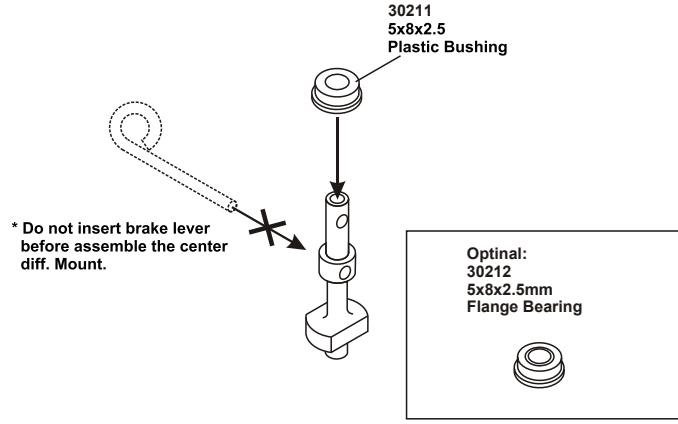
## ASSEMBLY OF THE BRAKE CAP JOINT



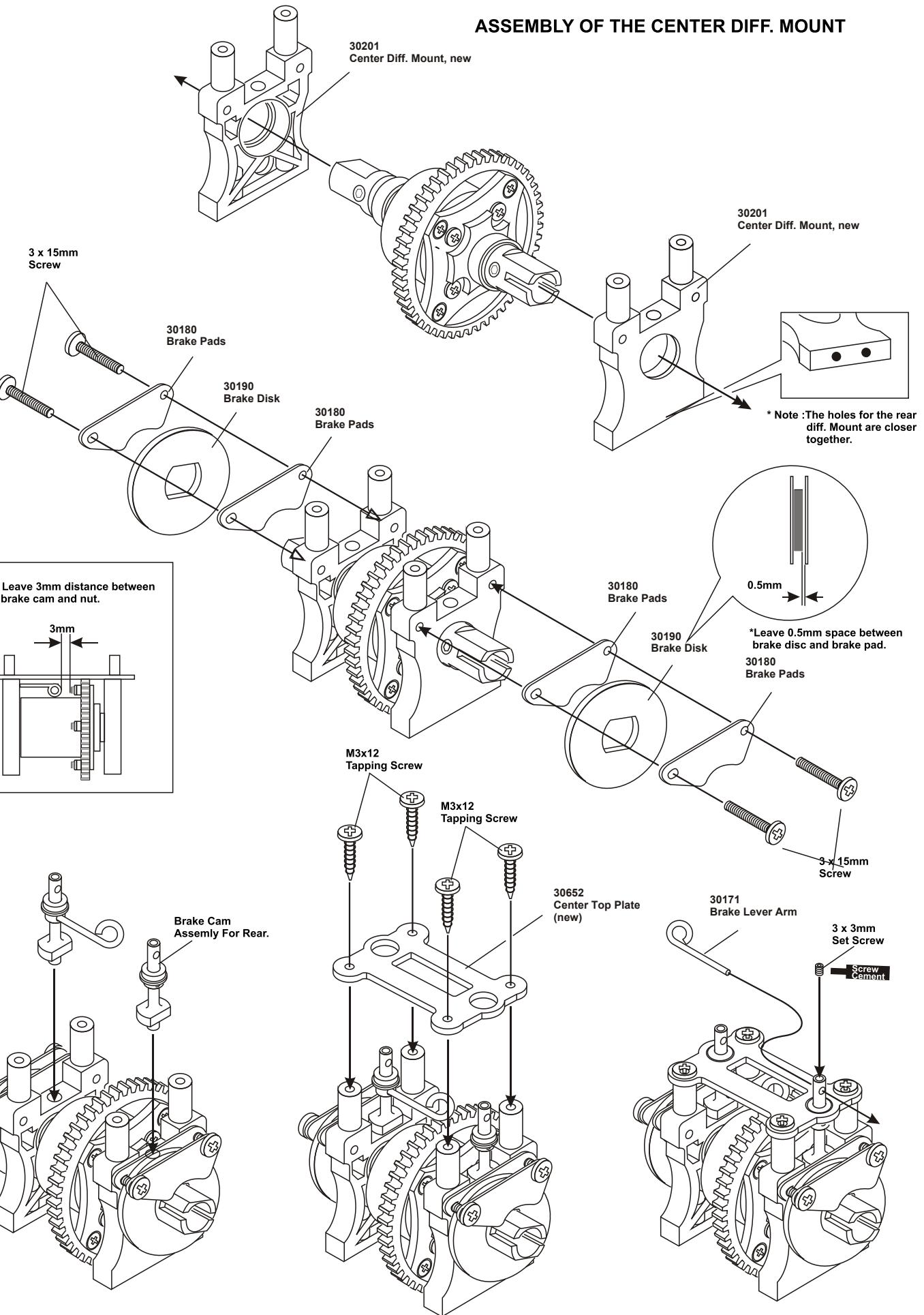
## ASSEMBLY OF THE BRAKE CAM FOR FRONT



## ASSEMBLY OF THE BRAKE CAM FOR REAR



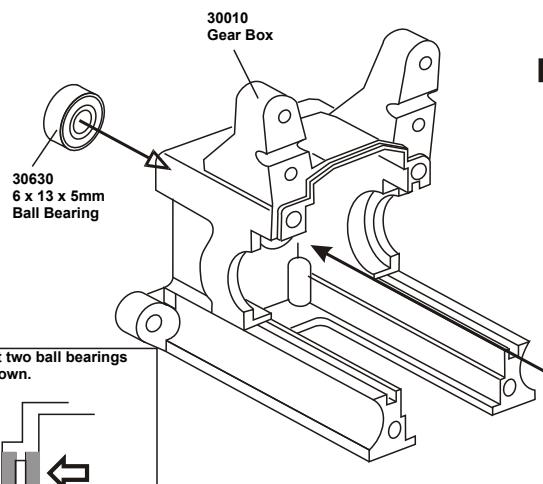
## ASSEMBLY OF THE CENTER DIFF. MOUNT



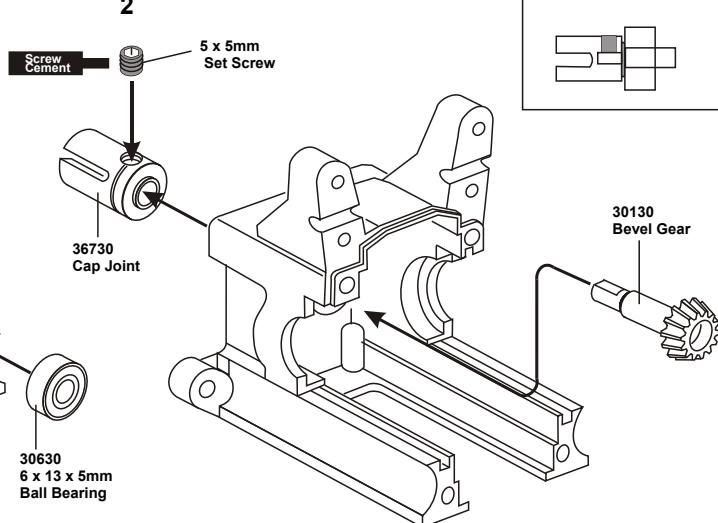
## ASSEMBLY OF THE GEAR BOX

(Assemble two gear boxes for front and rear.)

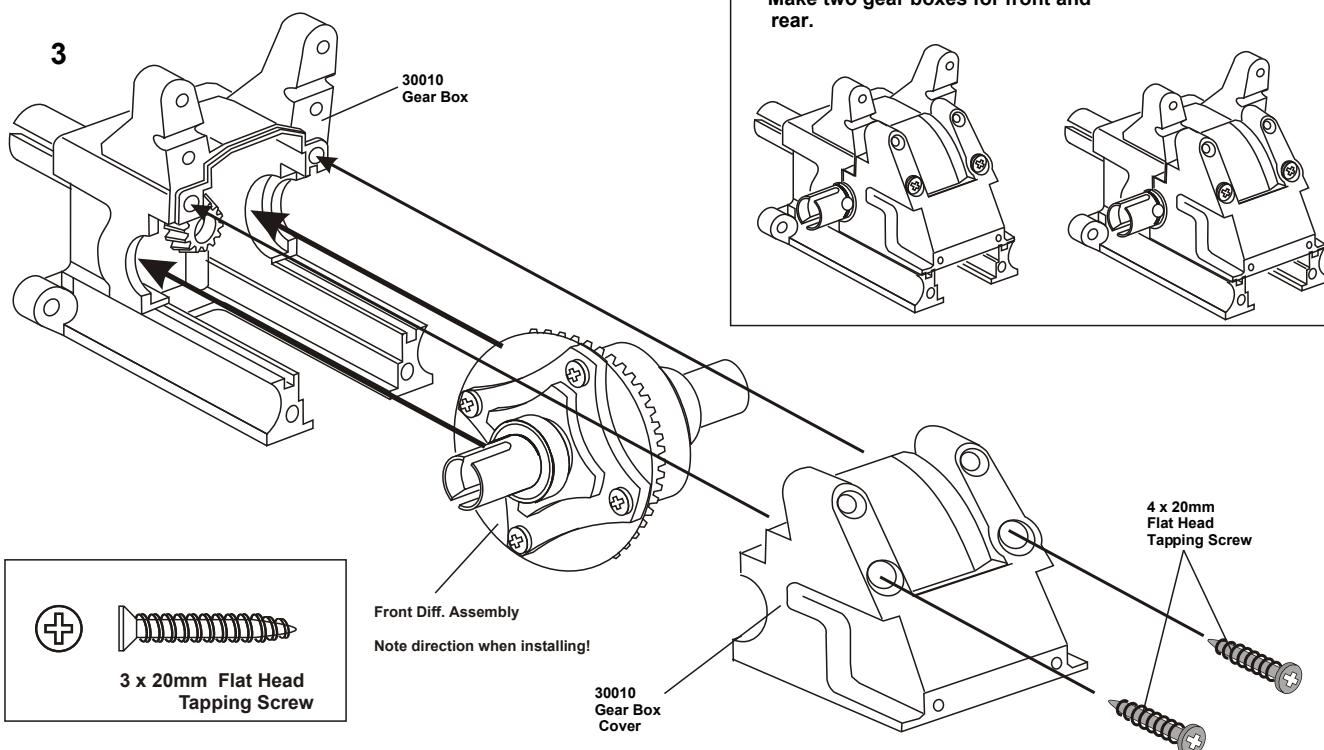
1



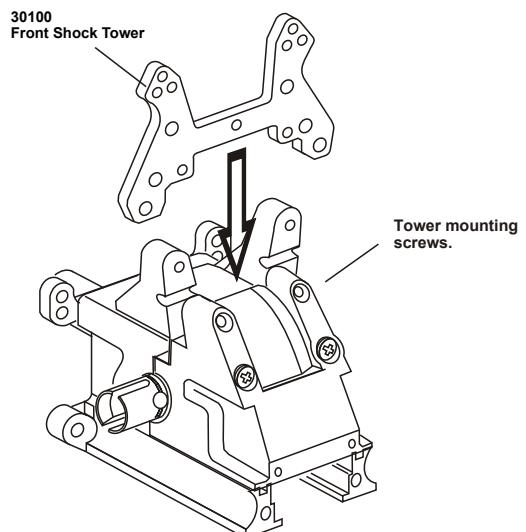
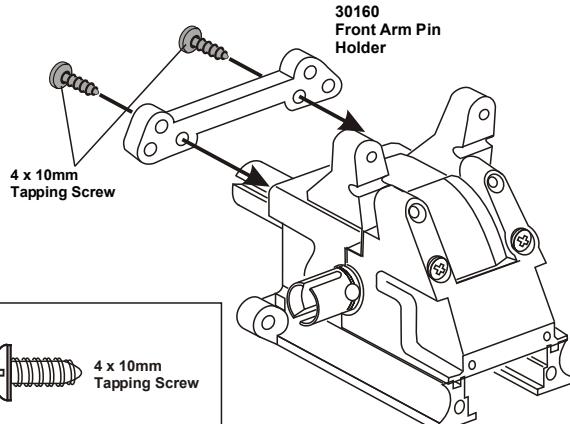
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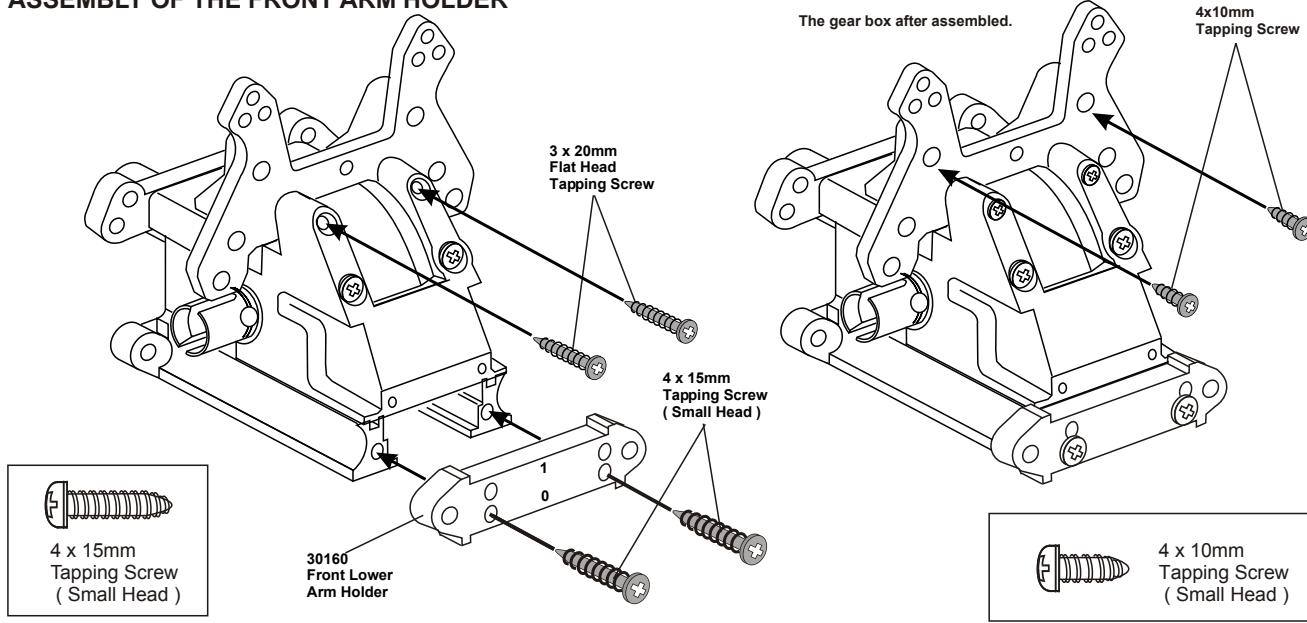
3



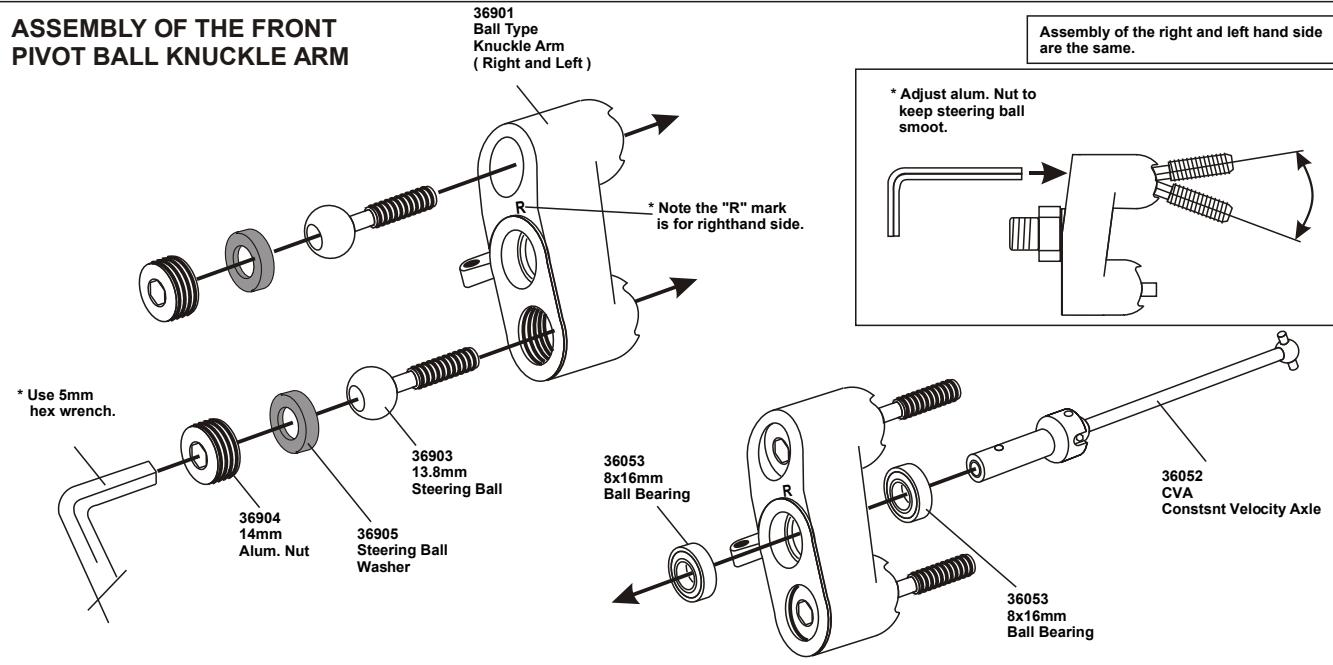
## ASSEMBLY OF THE FRONT SHOCK TOWER



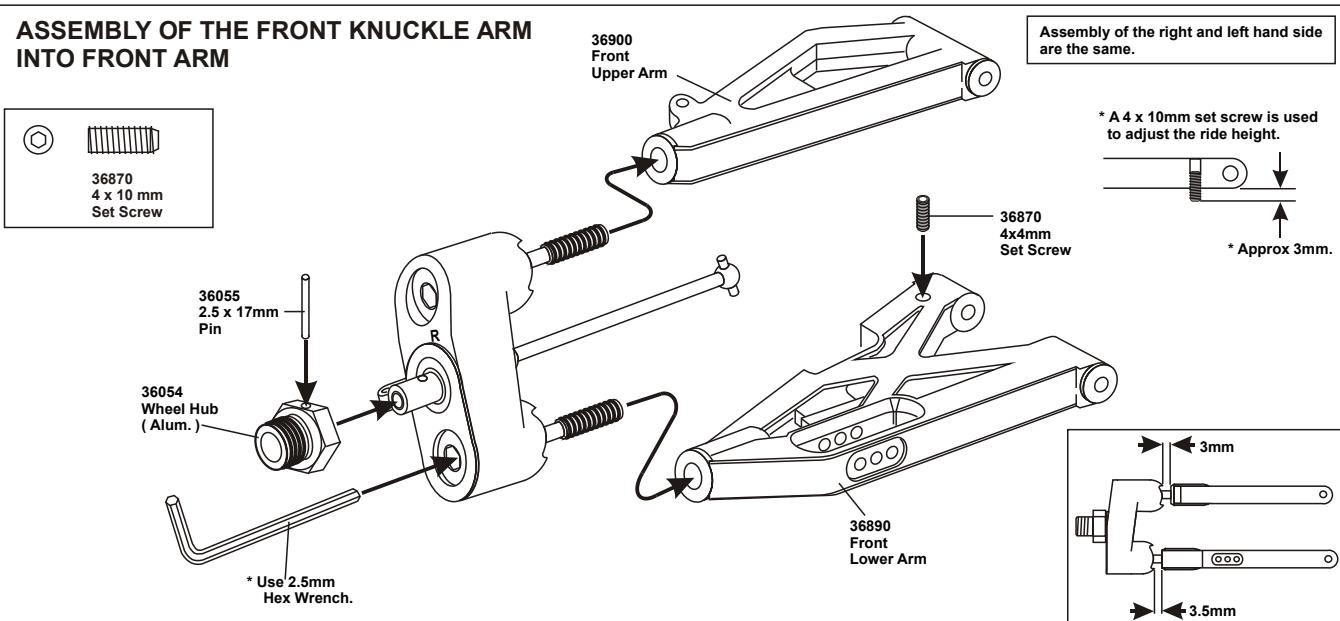
## ASSEMBLY OF THE FRONT ARM HOLDER



## ASSEMBLY OF THE FRONT PIVOT BALL KNUCKLE ARM

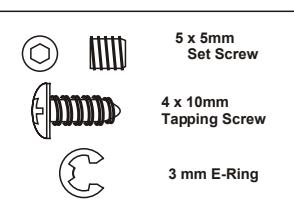


## ASSEMBLY OF THE FRONT KNUCKLE ARM INTO FRONT ARM



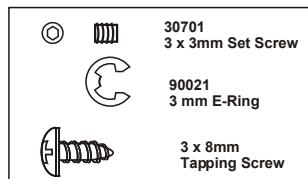
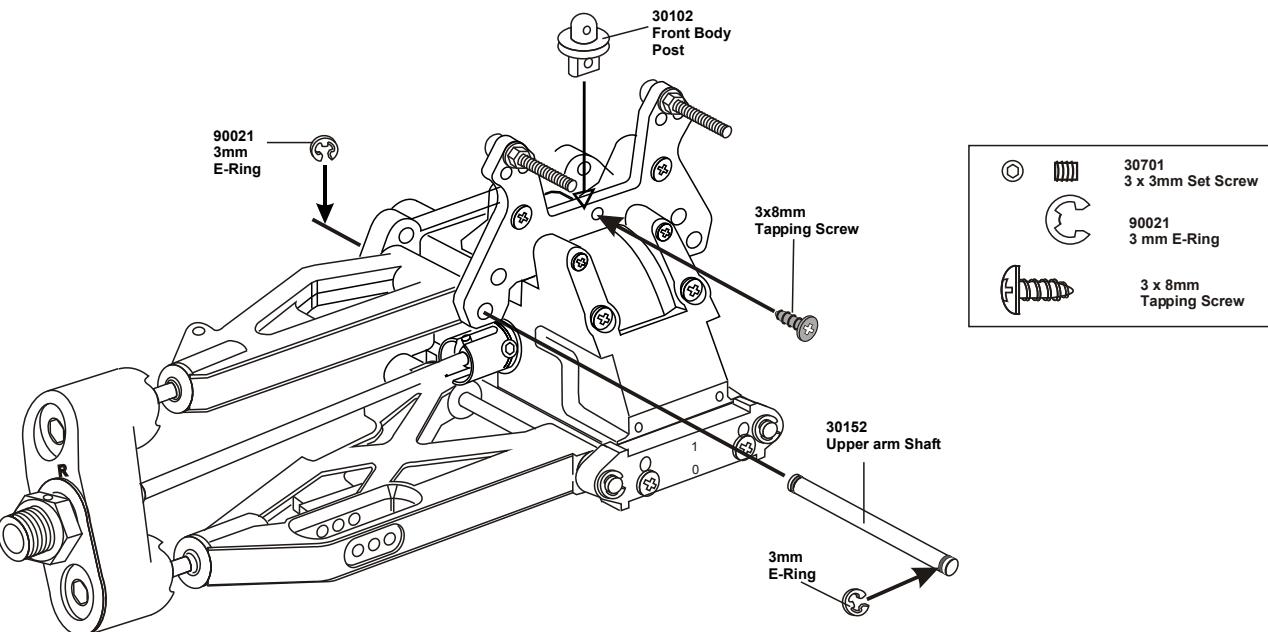
## ASSEMBLY OF THE FRONT ARM ONTO GEAR BOX

Assembly of the right and left hand side are the same.



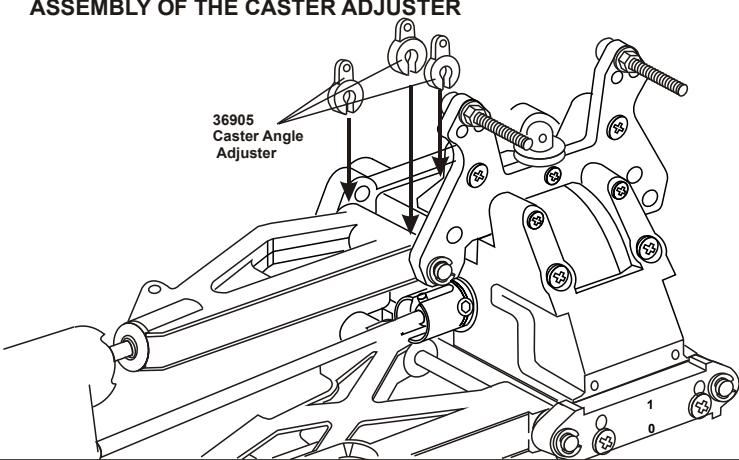
\* Do not over tighten  
5x5mm set screw.

\* Insert drive shaft  
before assembly.

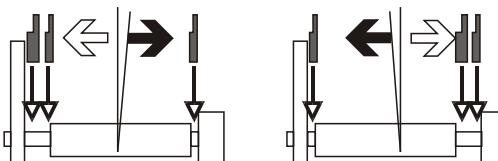


## ASSEMBLY OF THE CASTER ADJUSTER

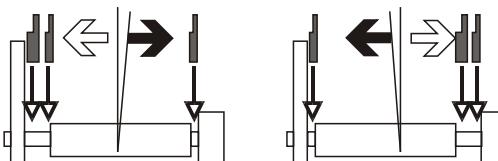
\* use adjuster to change  
the caster angle .



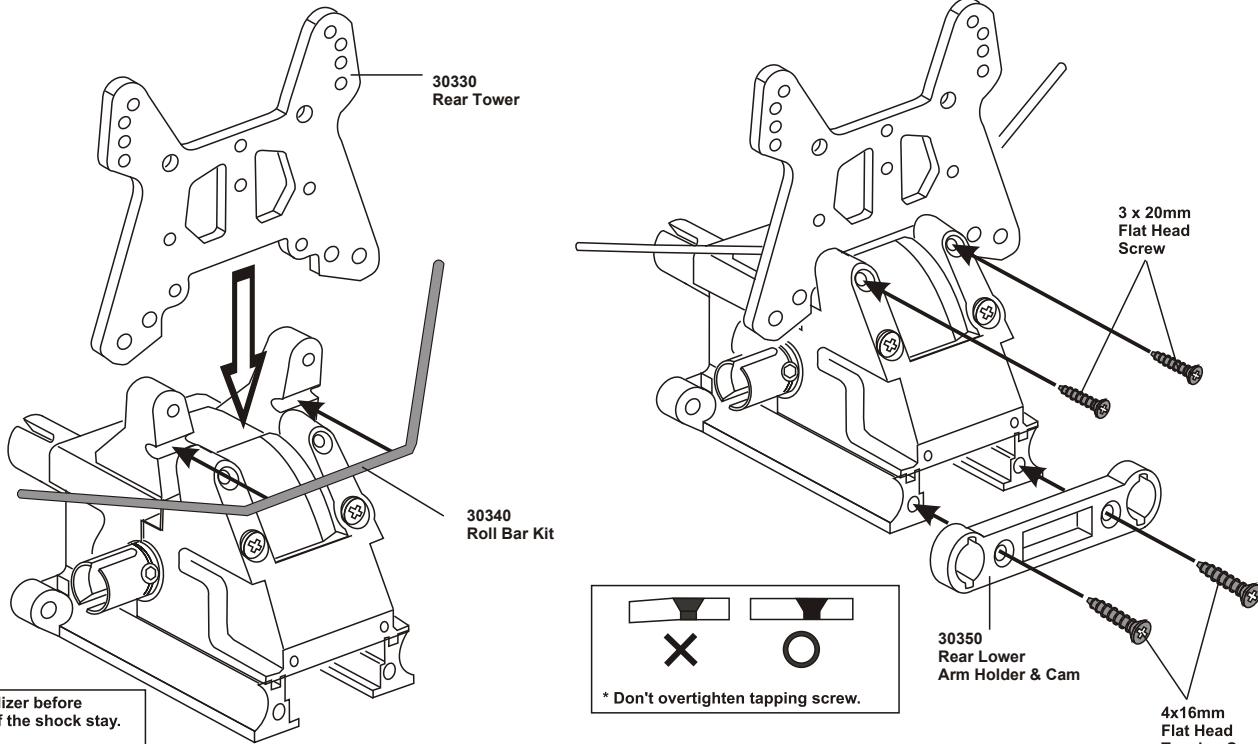
Caster angle will  
become bigger.



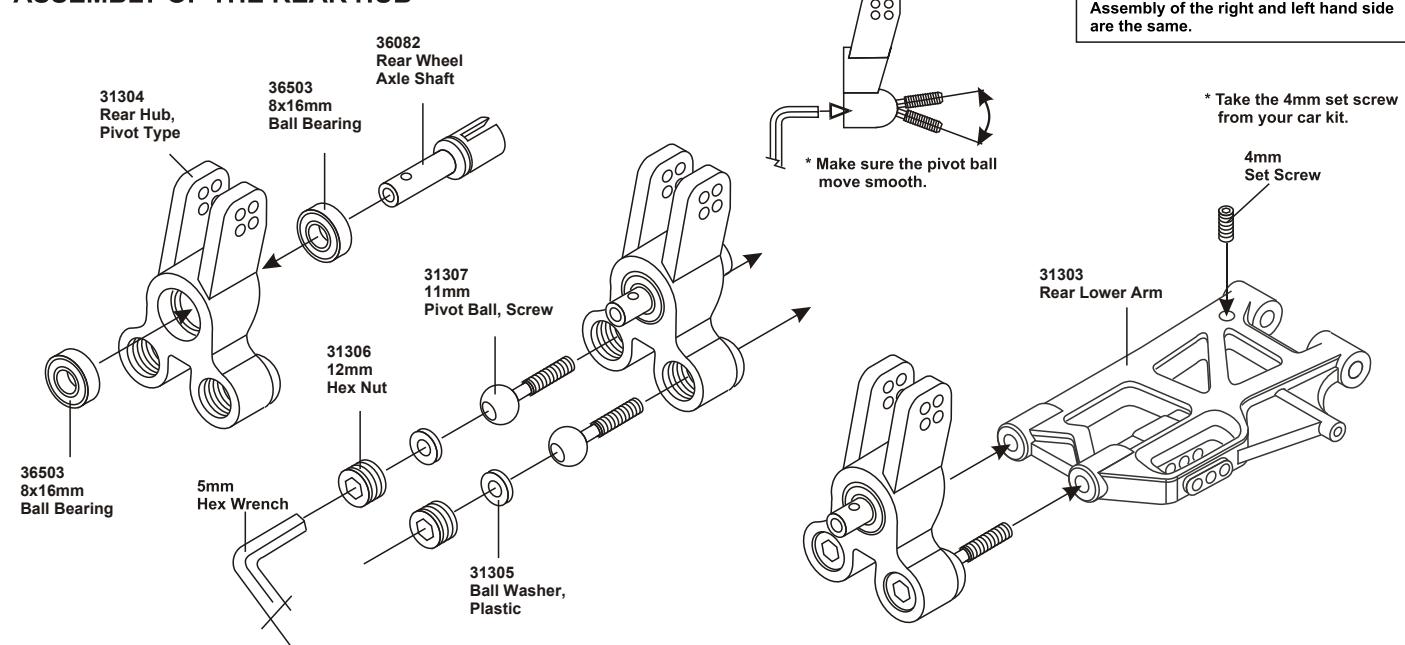
Caster angle will  
become less.



## ASSEMBLY OF THE REAR SHOCK STAY

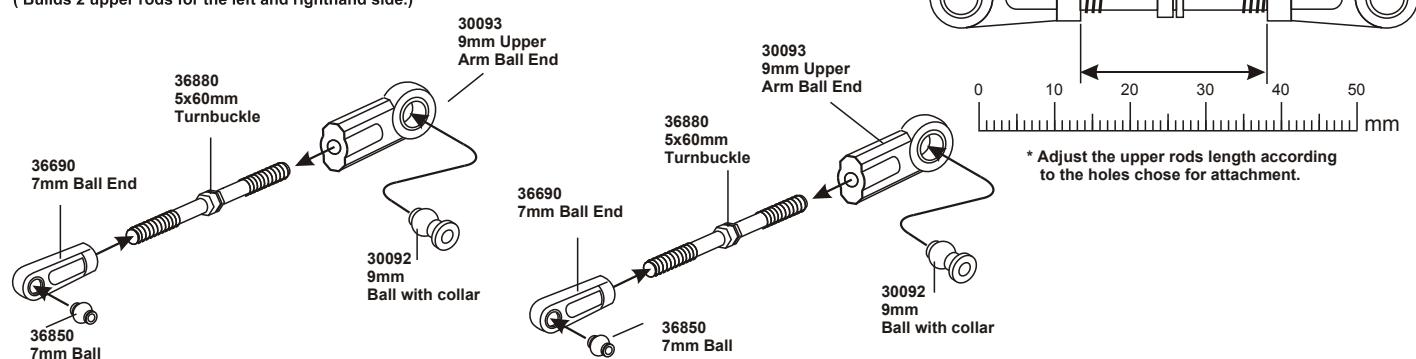


## ASSEMBLY OF THE REAR HUB



## ASSEMBLY OF THE REAR UPPER ROD

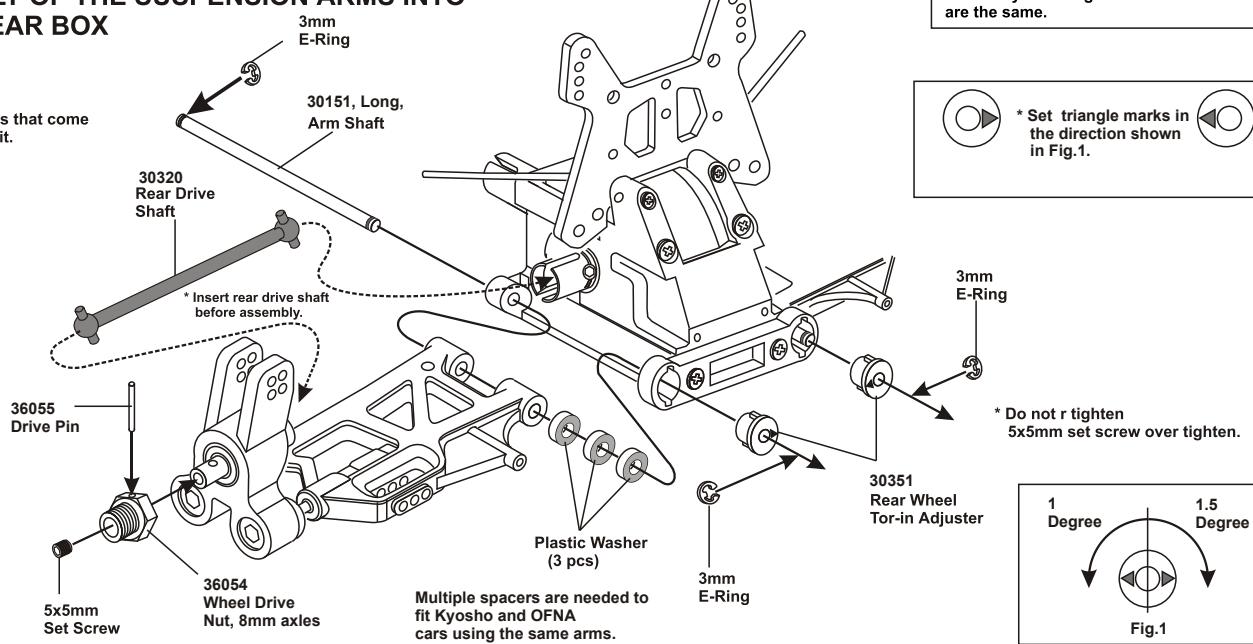
(Builds 2 upper rods for the left and righthand side.)



## ASSEMBLY OF THE SUSPENSION ARMS INTO REAR GEAR BOX

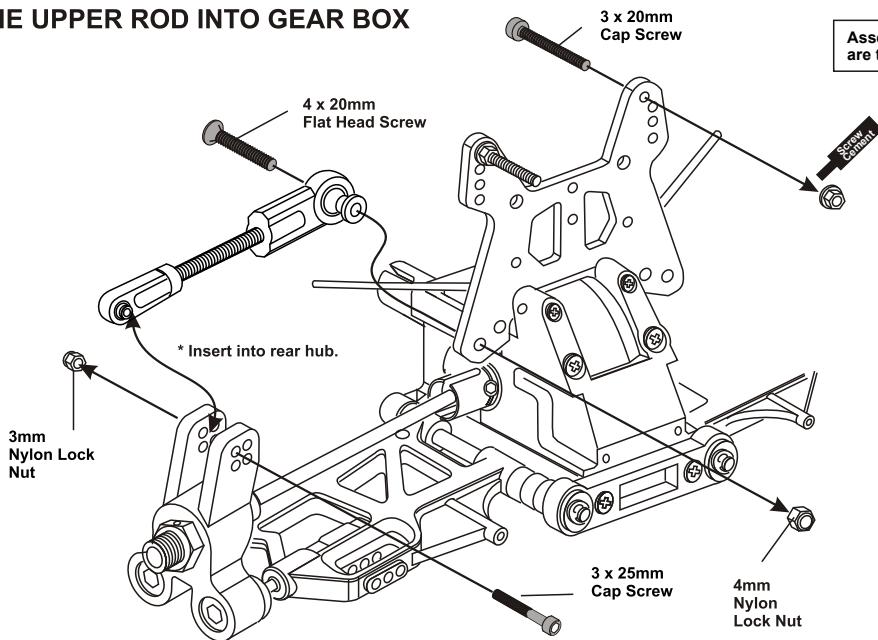
Assembly of the right and left hand side are the same.

\* Use the parts that come with your kit.



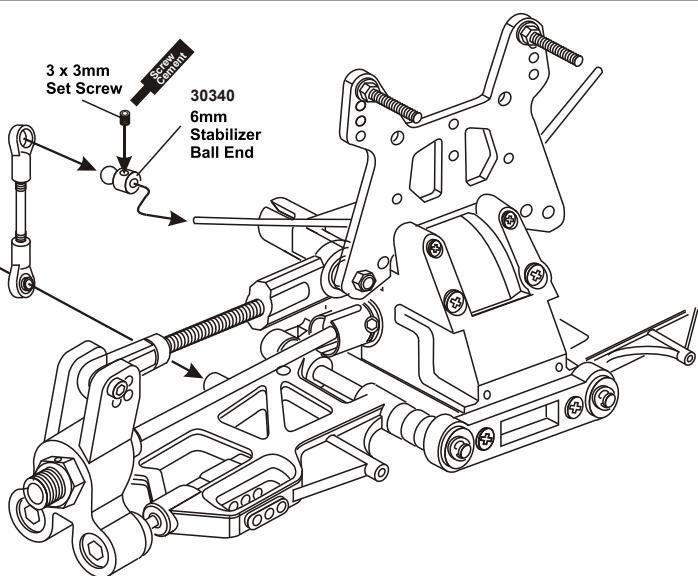
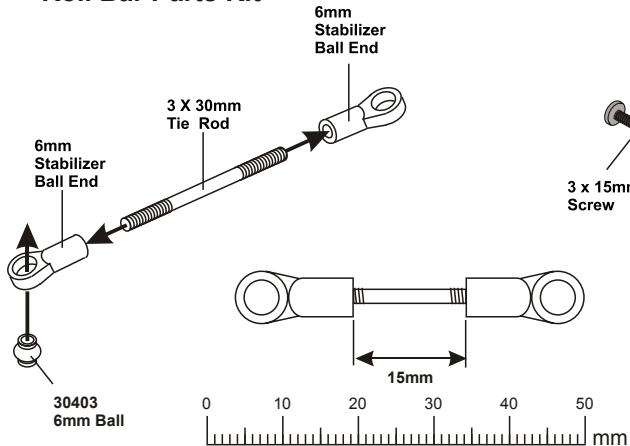
## ASSEMBLY OF THE UPPER ROD INTO GEAR BOX

Assembly of the right and left hand side are the same.



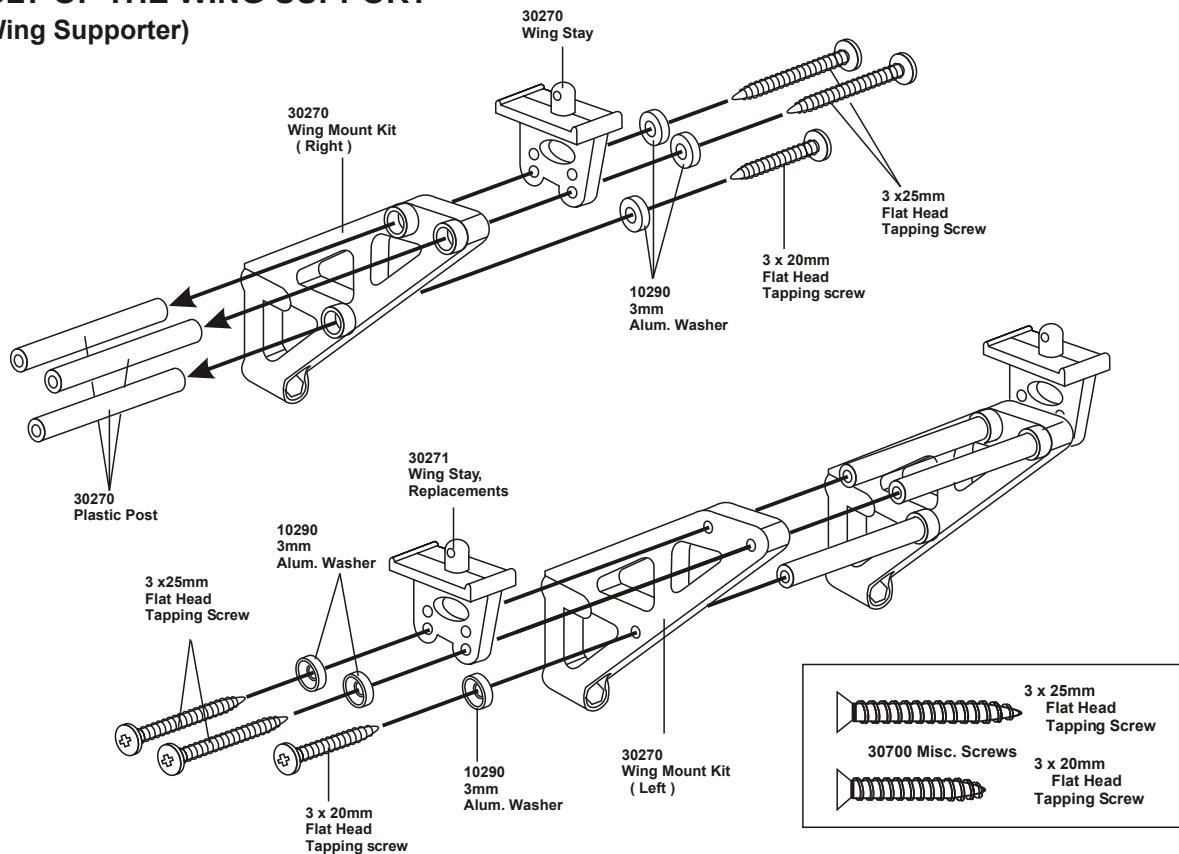
## ASSEMBLY OF THE REAR STABILIZER ROD

### 30340 Roll Bar Parts Kit

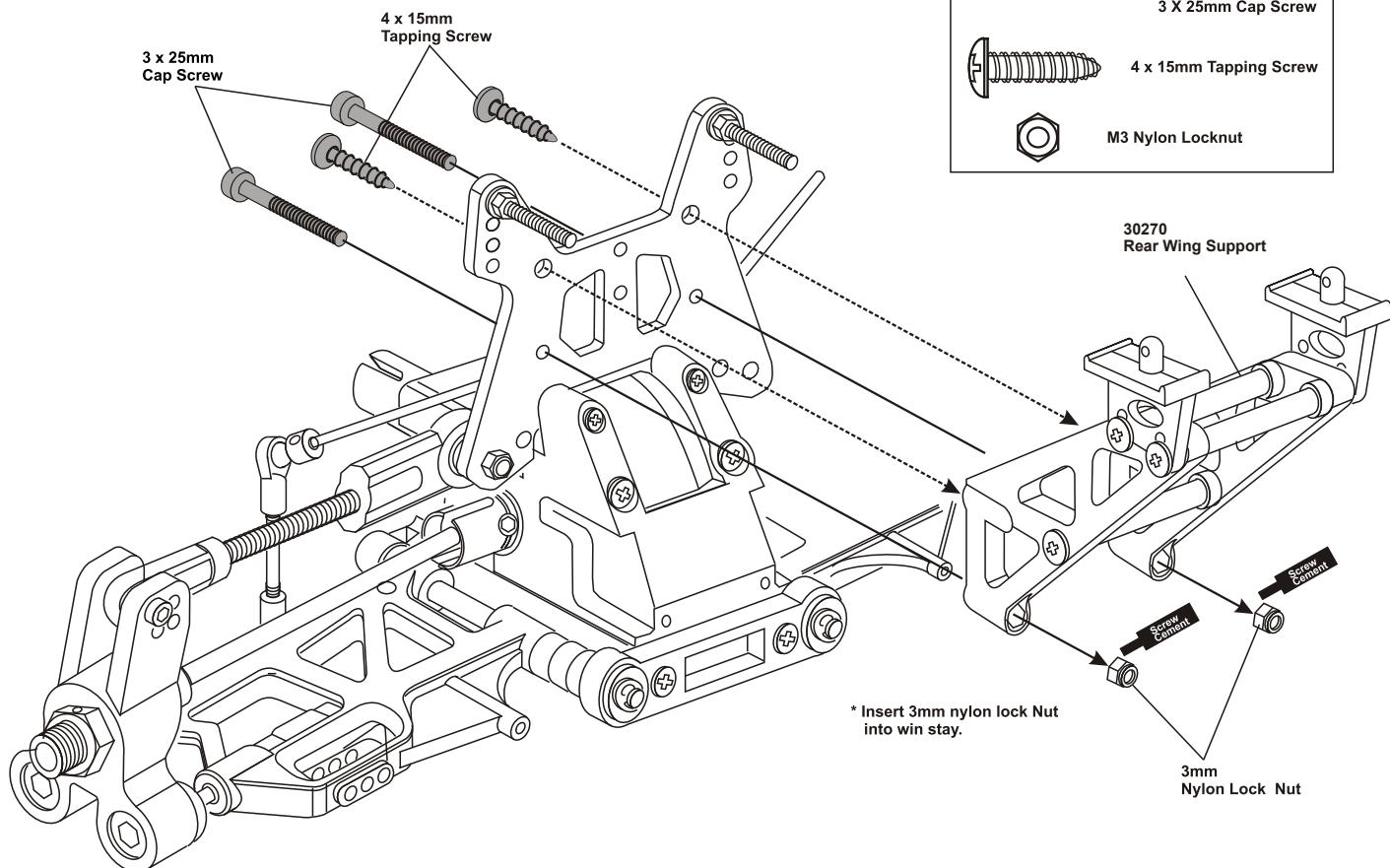


## ASSEMBLY OF THE WING SUPPORT

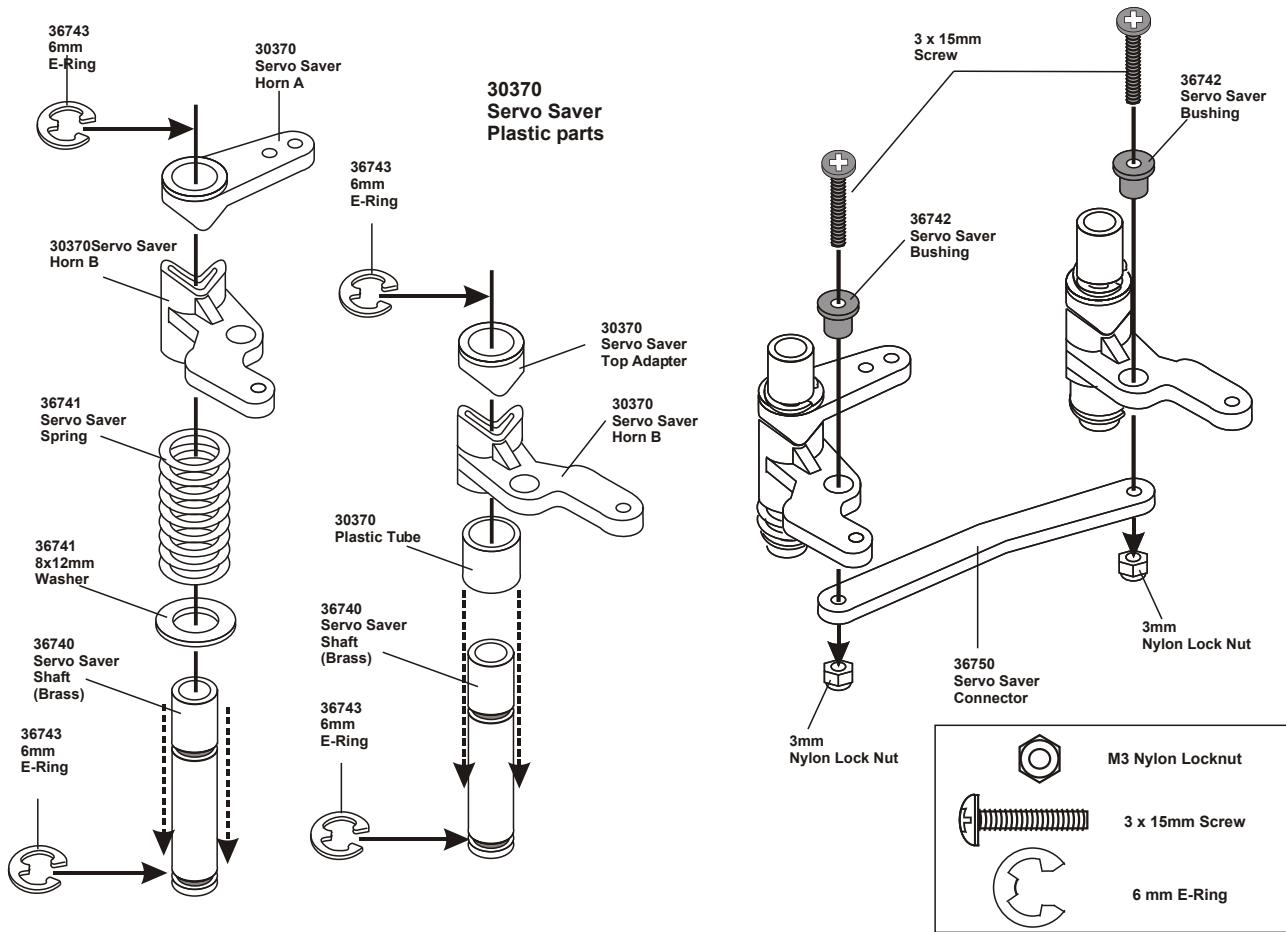
(30270 Wing Supporter)



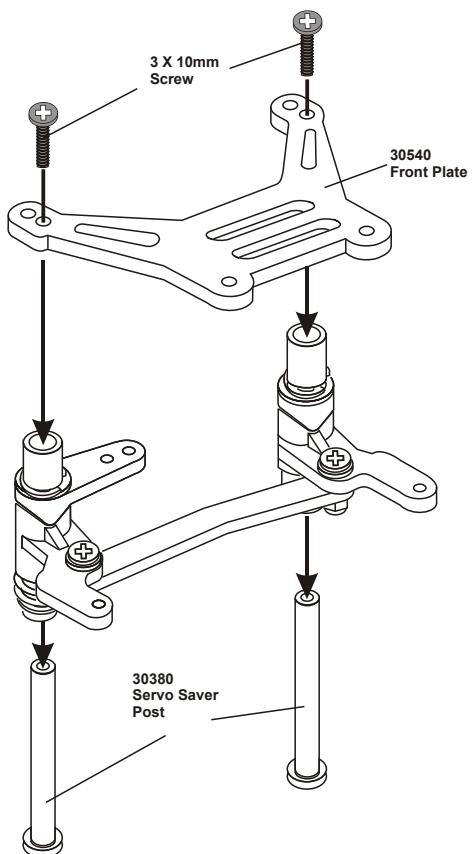
## ASSEMBLY OF THE REAR WING MOUNT



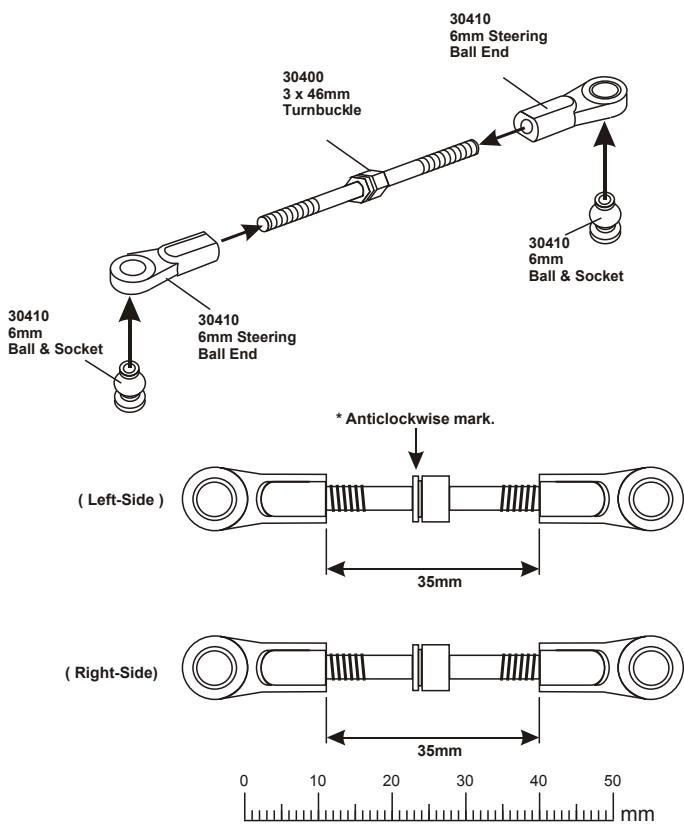
## ASSEMBLY OF THE SERVO SAVER



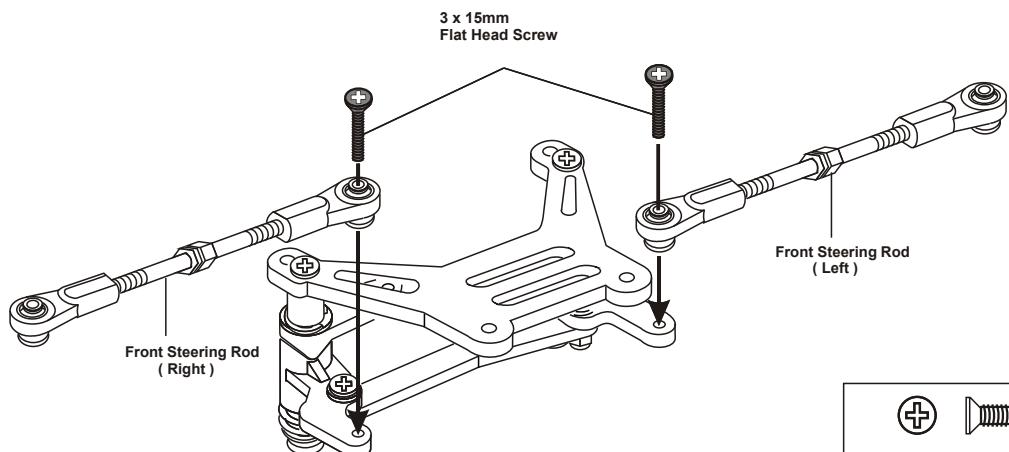
## ASSEMBLY OF THE FRONT PLATE AND STEERING ROD



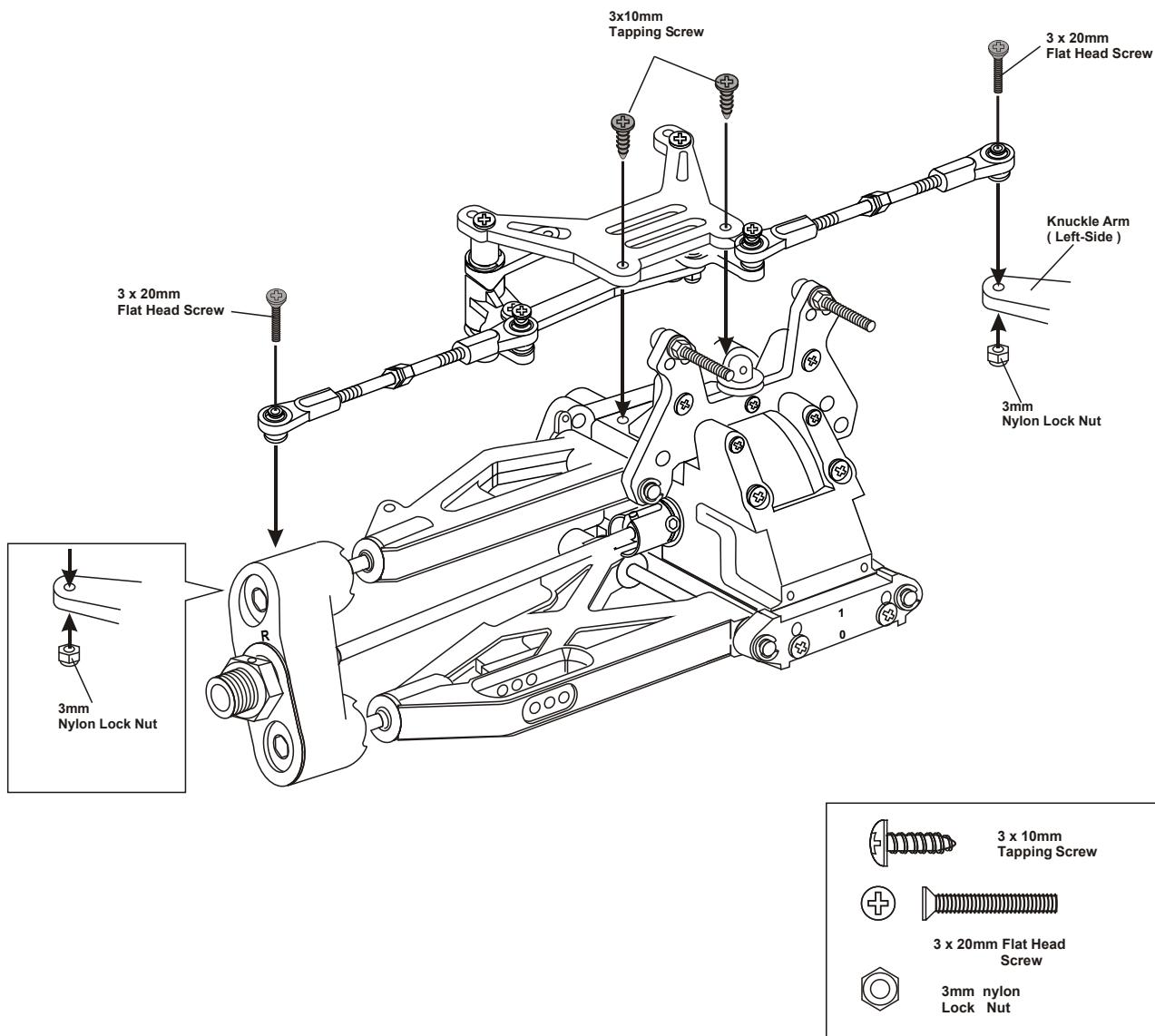
\* Made two steering rods for left and right-side.



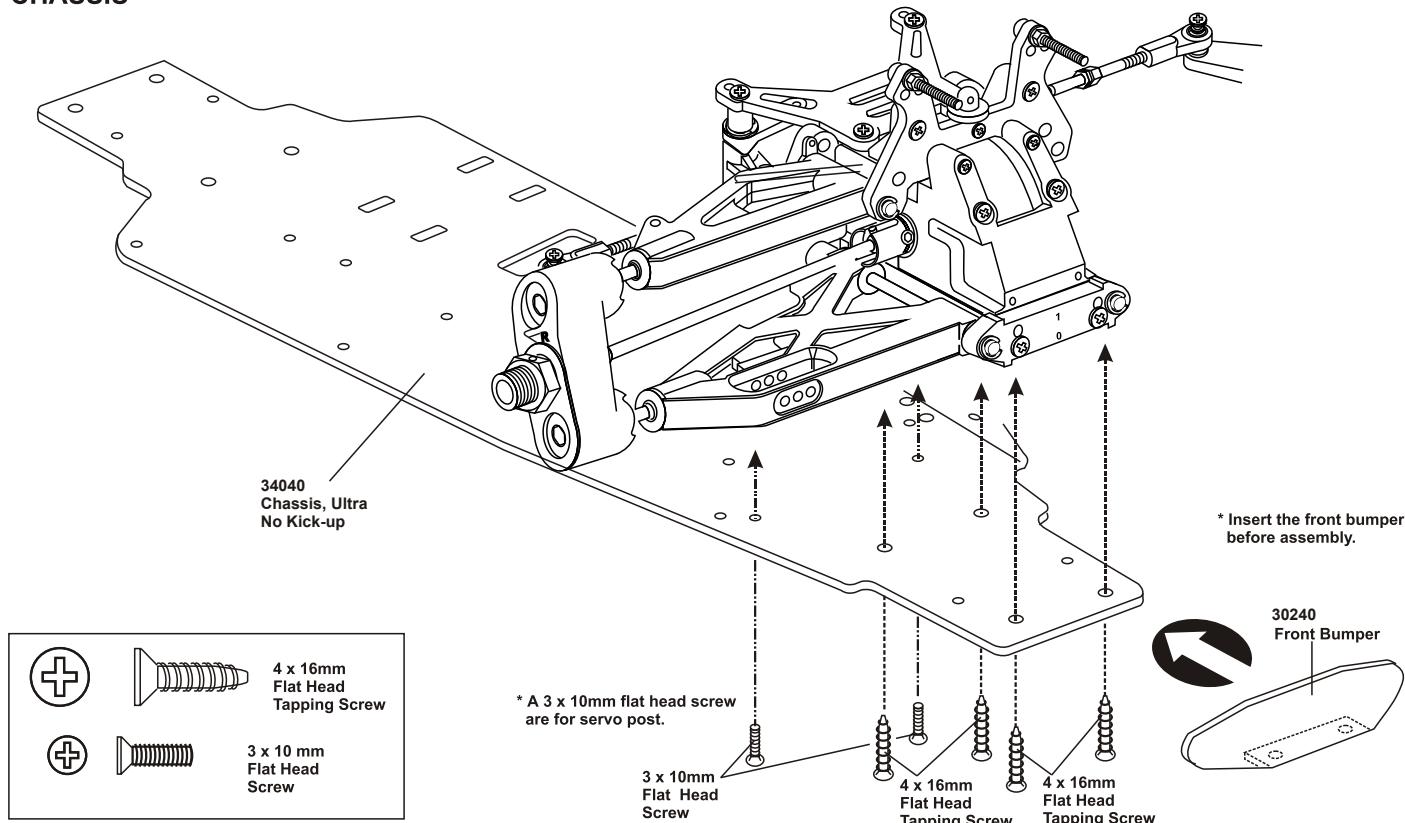
## ASSEMBLY OF THE FRONT PLATE AND STEERING ROD



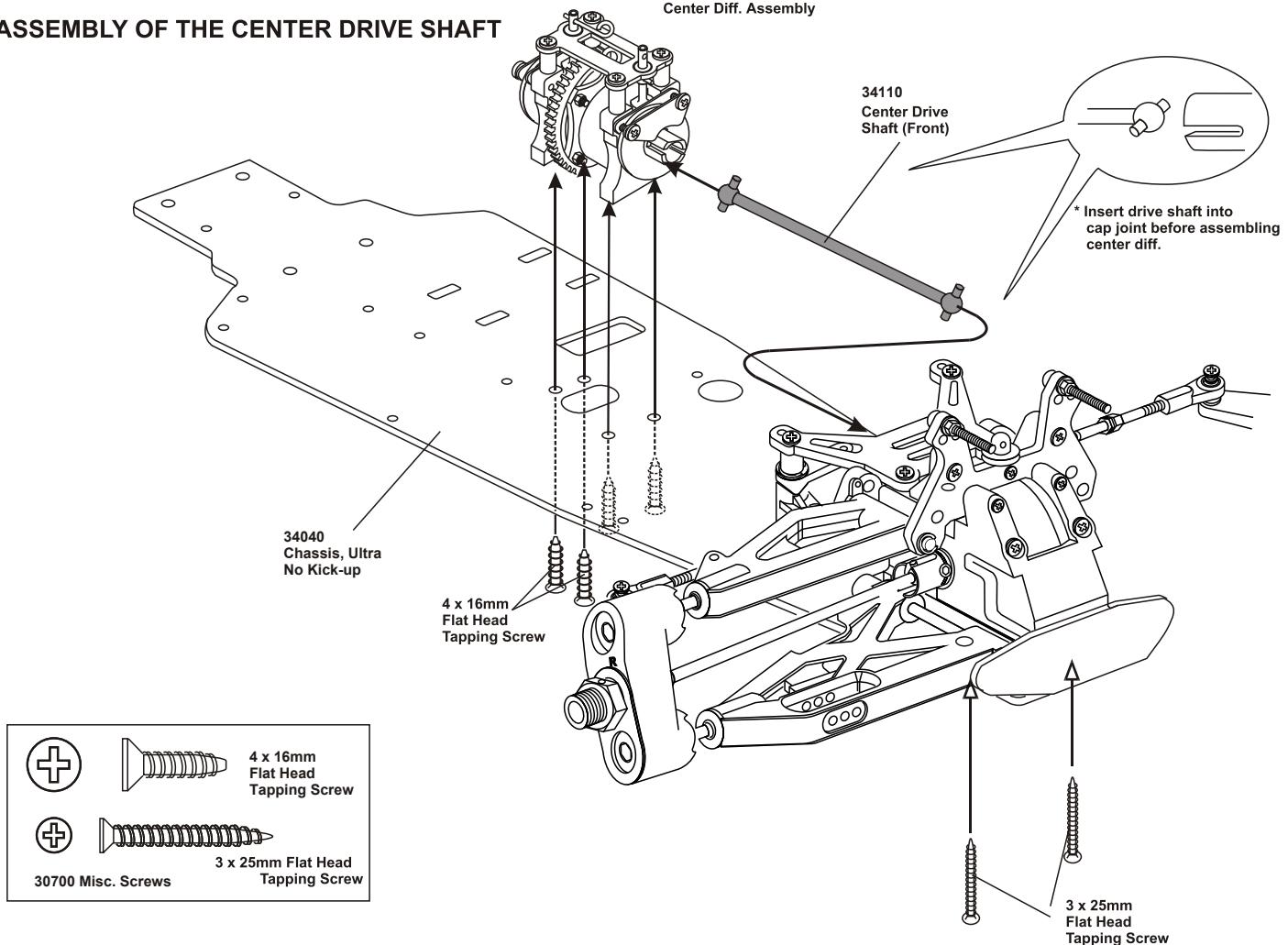
## ASSEMBLY OF THE FRONT PLATE ONTO THE FRONT GEAR BOX



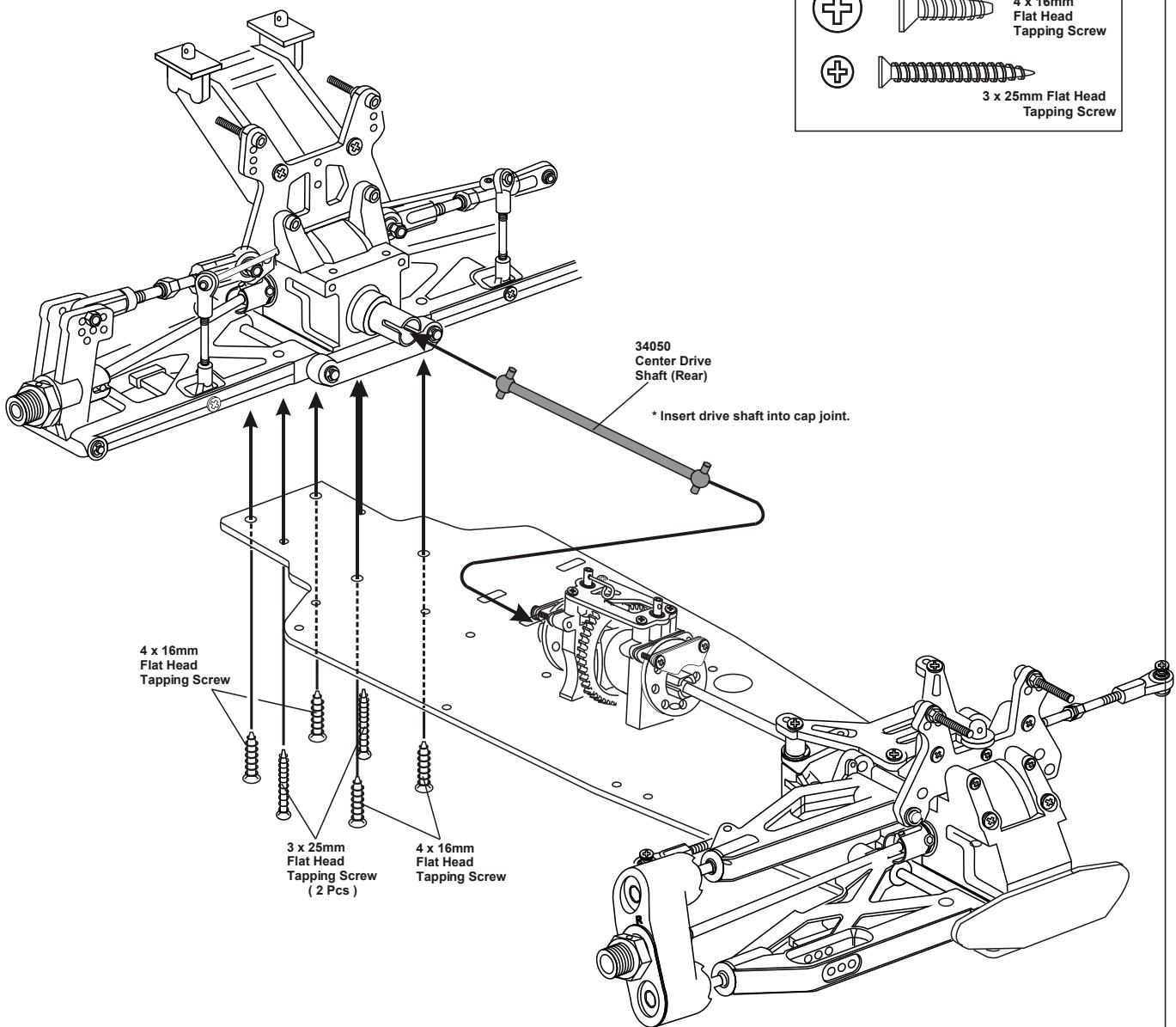
## ASSEMBLY OF THE FRONT GEAR BOX ONTO CHASSIS



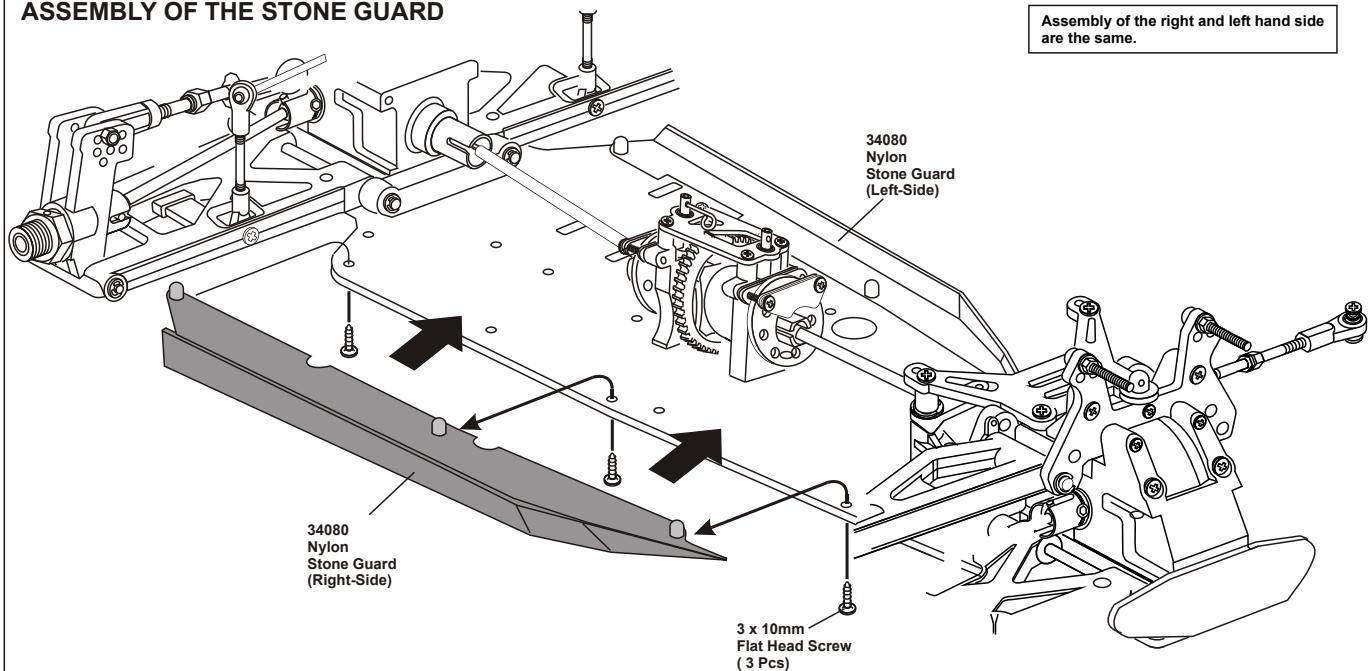
## ASSEMBLY OF THE CENTER DRIVE SHAFT



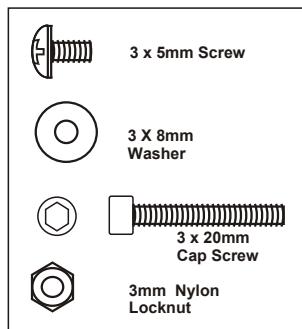
## ASSEMBLY OF THE GEAR BOX ONTO CHASSIS



## ASSEMBLY OF THE STONE GUARD



## ASSEMBLY OF THE CLUTCH INTO ENGINE



Notes:  
Non-Pull Start Engines...  
• Alum. Washer behind the flywheel is not needed when using Force engines or similar types. O.S. Engines will require washer spacer.

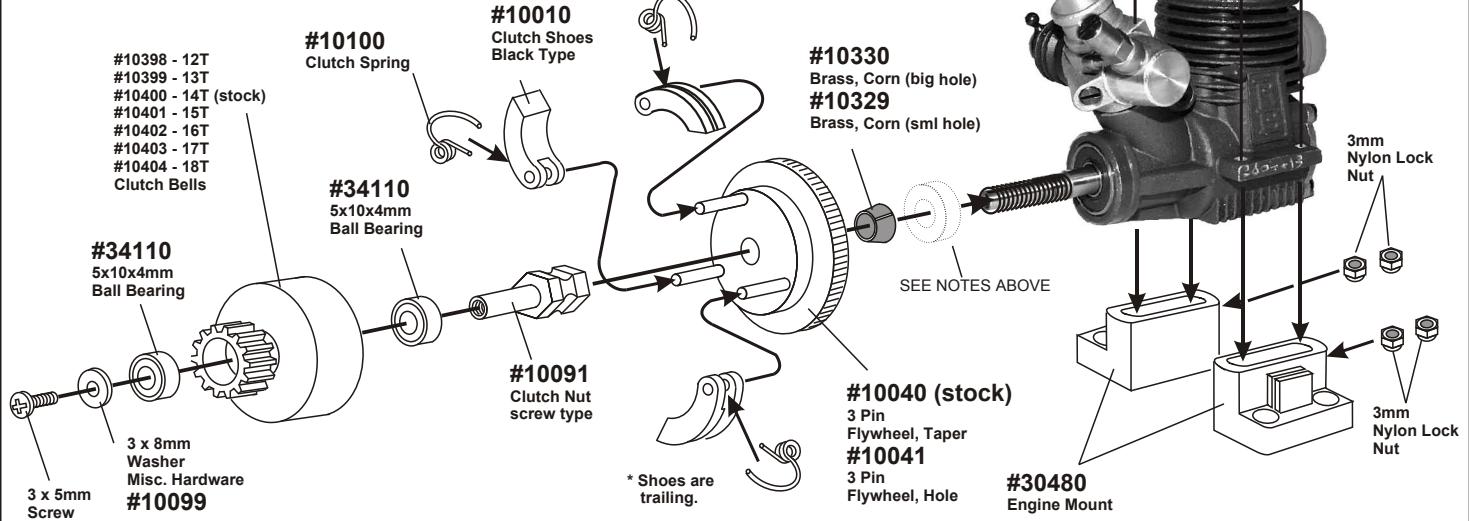
• To check...place the brass corn #10330 (big hole) against the engine bearing, then flywheel. You should be covering one or two thread of the engine shaft. If this is the case, you do not need an additional washer behind the flywheel.

You must cut the engine shaft if too long. Count 6 threads in front of the flywheel and mark. This is all you need to tighten the clutch nut and mount the flywheel.

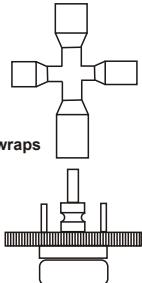
Force Pull Start Engine...

• Force Pull Start Engines required NO additional spacer and no shaft cutting. The Force engines comes with an alum. cast driver washer, you use this part as the spacer, not the alum. washer shown for O.S. installs

But, you must find the #10329 brass corn (smll hole) for Flywheel. This special corn fits the smaller thread diameter of the engine shaft. It will center the flywheel when tightening the clutch nut.



\* Fit the flywheel using a cross wrench or deep socket.



If engine turns when tightening, hold piston with large thick tie-wraps and hard wood in exhaust port. Do not use metal, it will damage engine.

\* Place the clutch shoes with the clutch springs over the 3 pins of the flywheel.

Using a screw driver as a lever, bend the small end of the clutch spring behind the clutch nut and press down to snap shoe in place.

#10098  
SG Nut & Shim kit



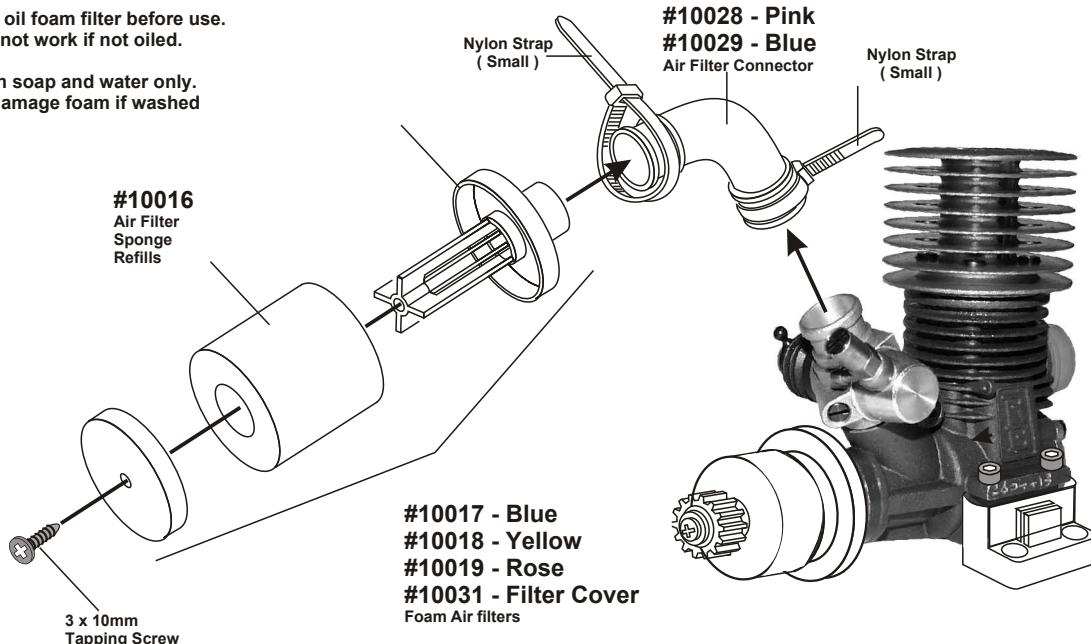
Engines with ground shafts and few threads are called SG Shaft. A special clutch nut is needed.

The stock flywheel (#10040) is fine.

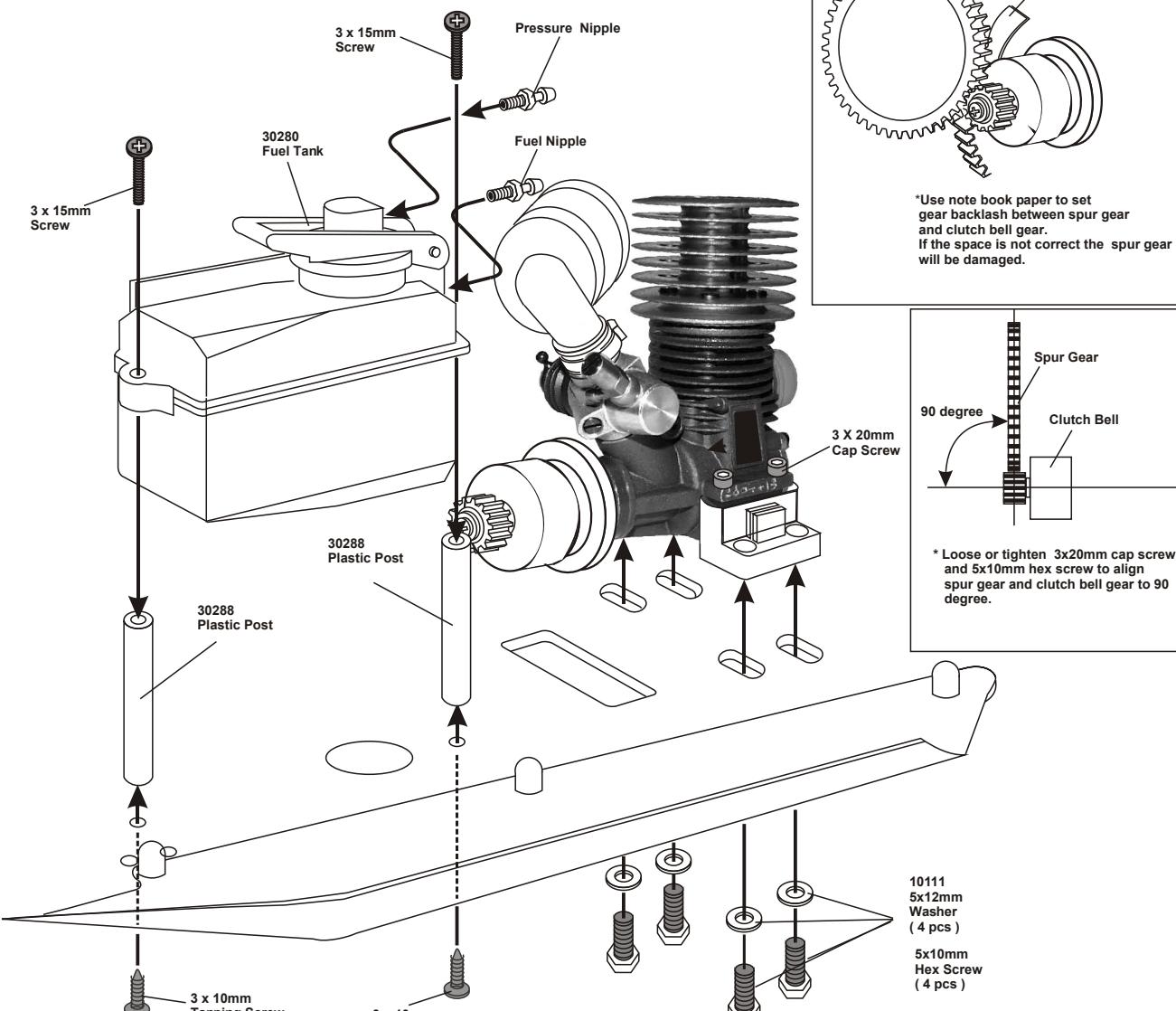
## ASSEMBLY OF THE AIR FILTER

You must oil foam filter before use. Filter will not work if not oiled.

Clean with soap and water only. You will damage foam if washed if fuel!

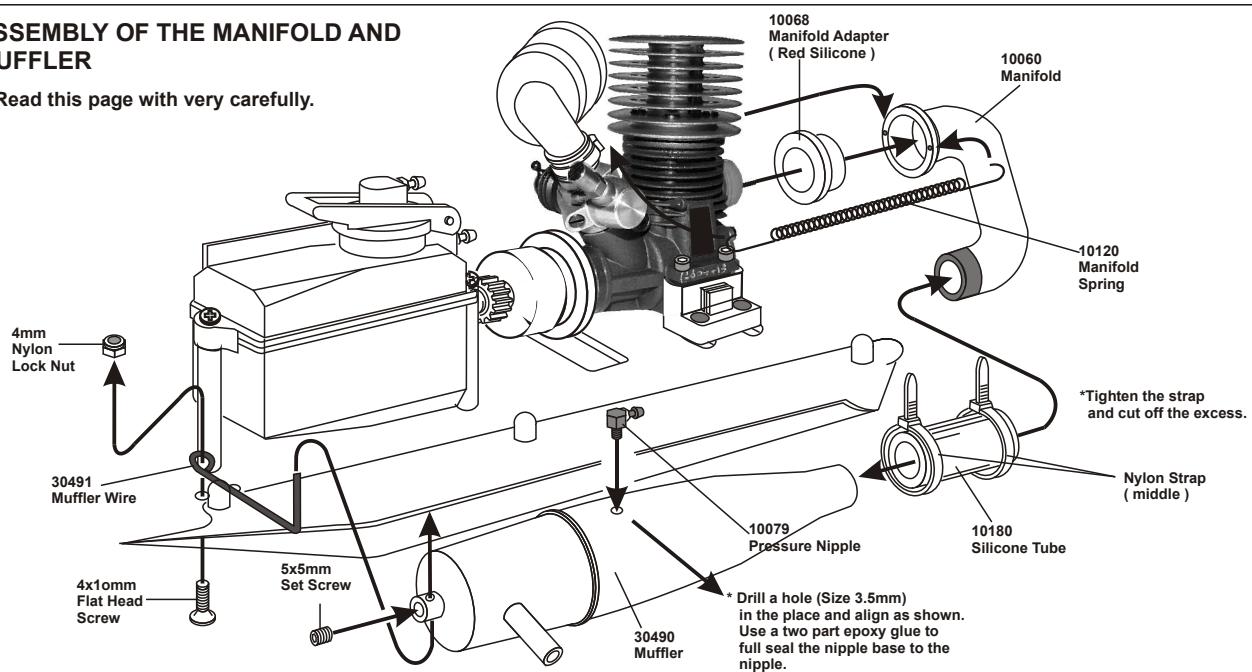


## INSTALLATION OF THE FUEL TANK AND ENGINE ONTO CHASSIS

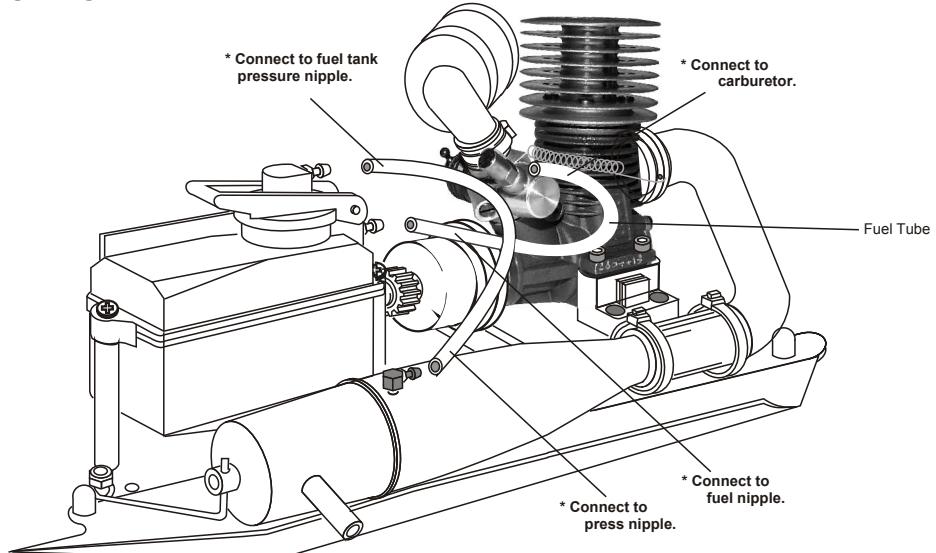


## ASSEMBLY OF THE MANIFOLD AND MUFFLER

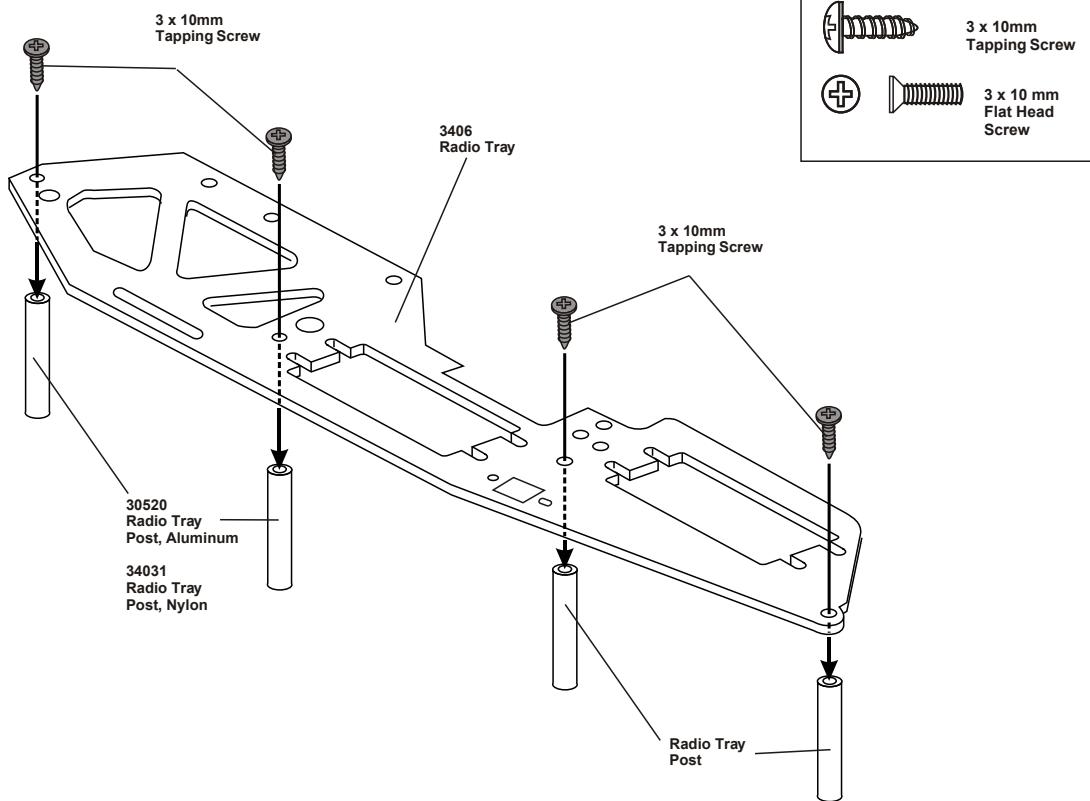
\* Read this page with very carefully.



### ASSEMBLY OF THE FUEL TUBE

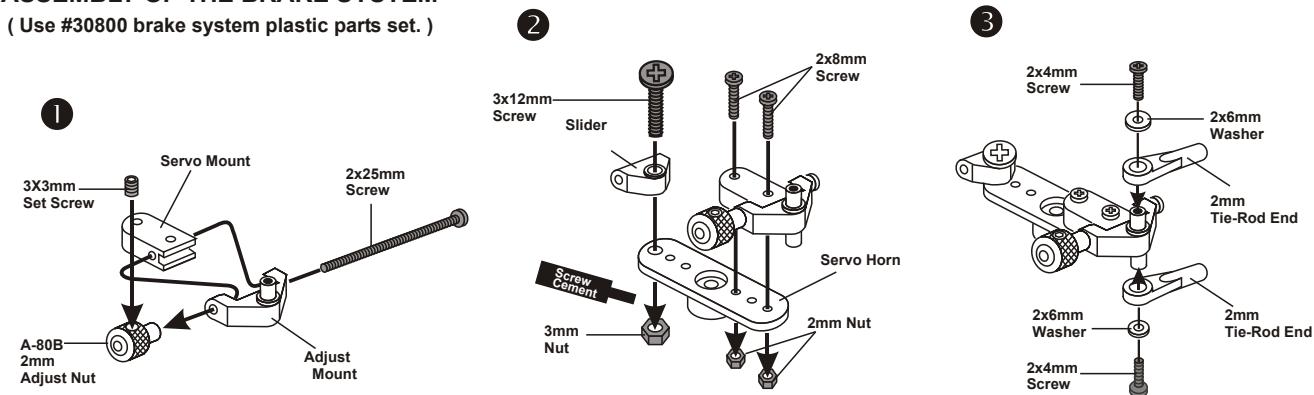


### ASSEMBLY OF THE RADIO TRAY AND SERVO

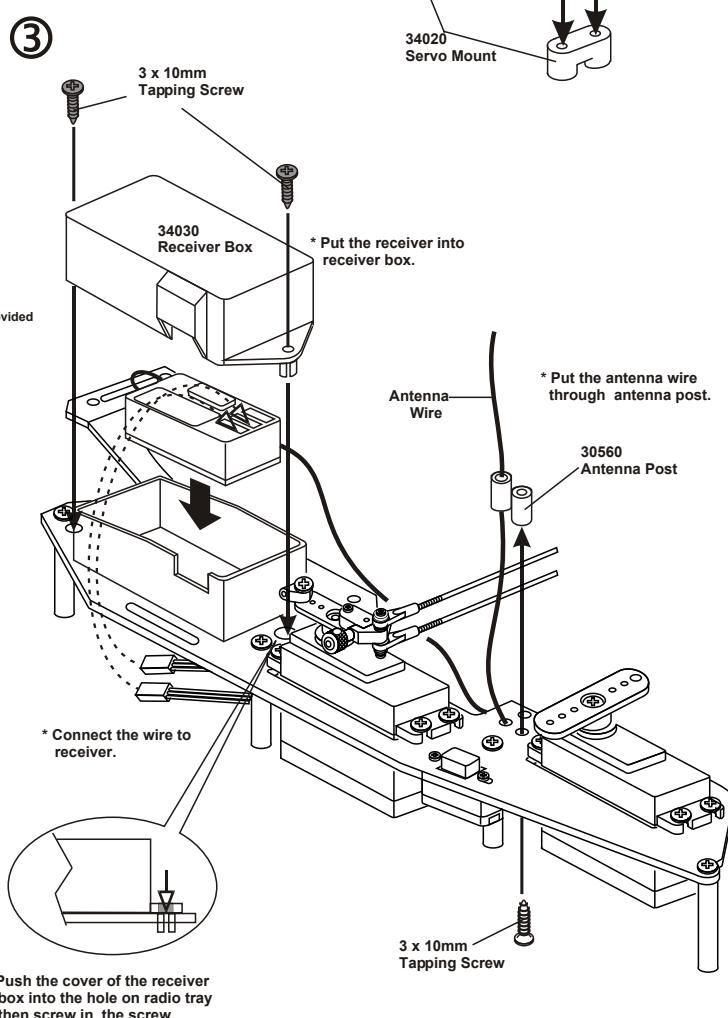
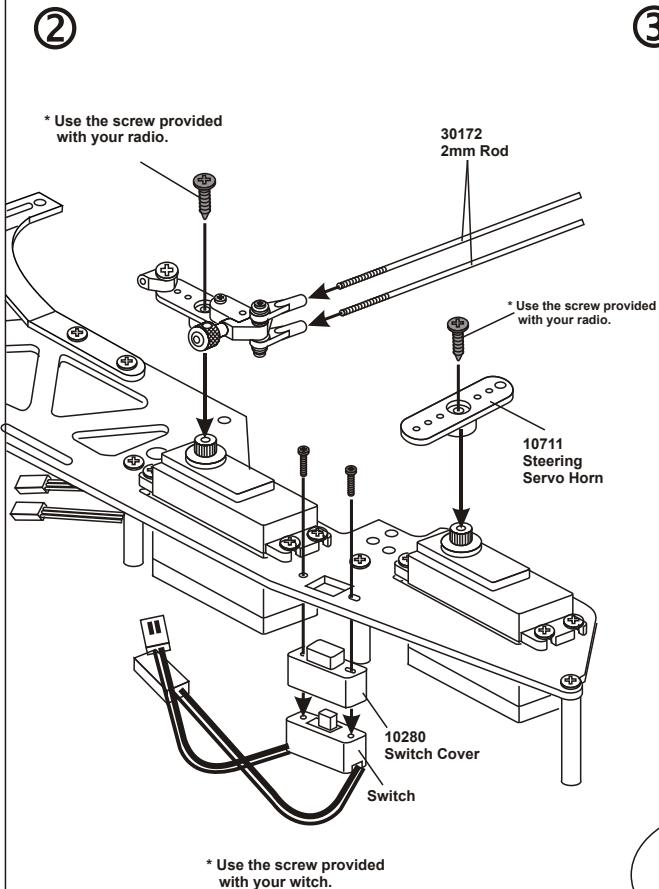
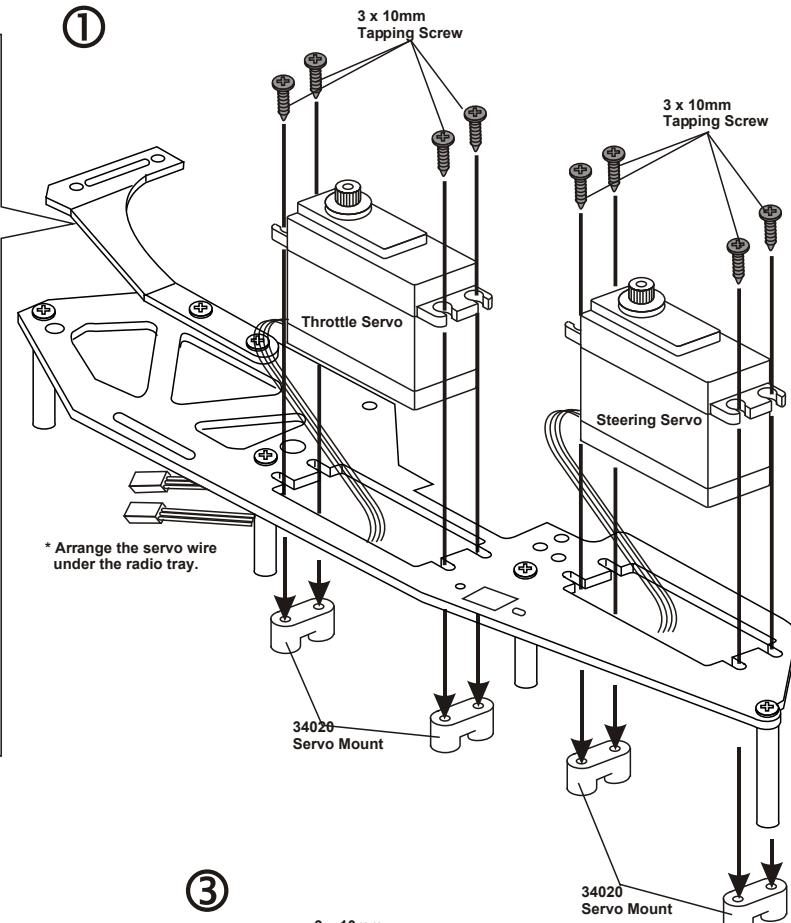
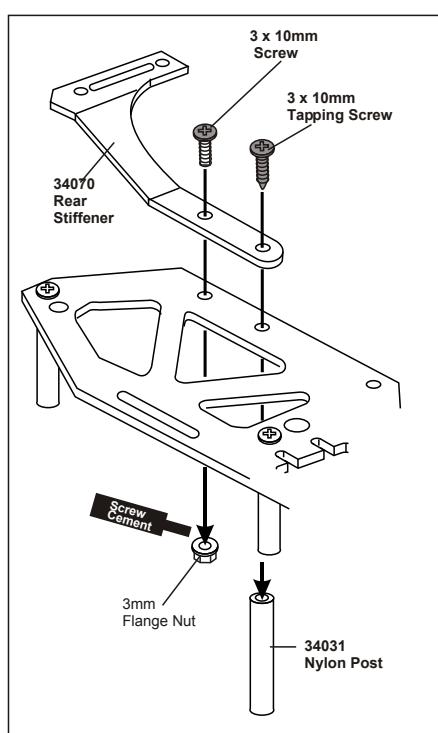


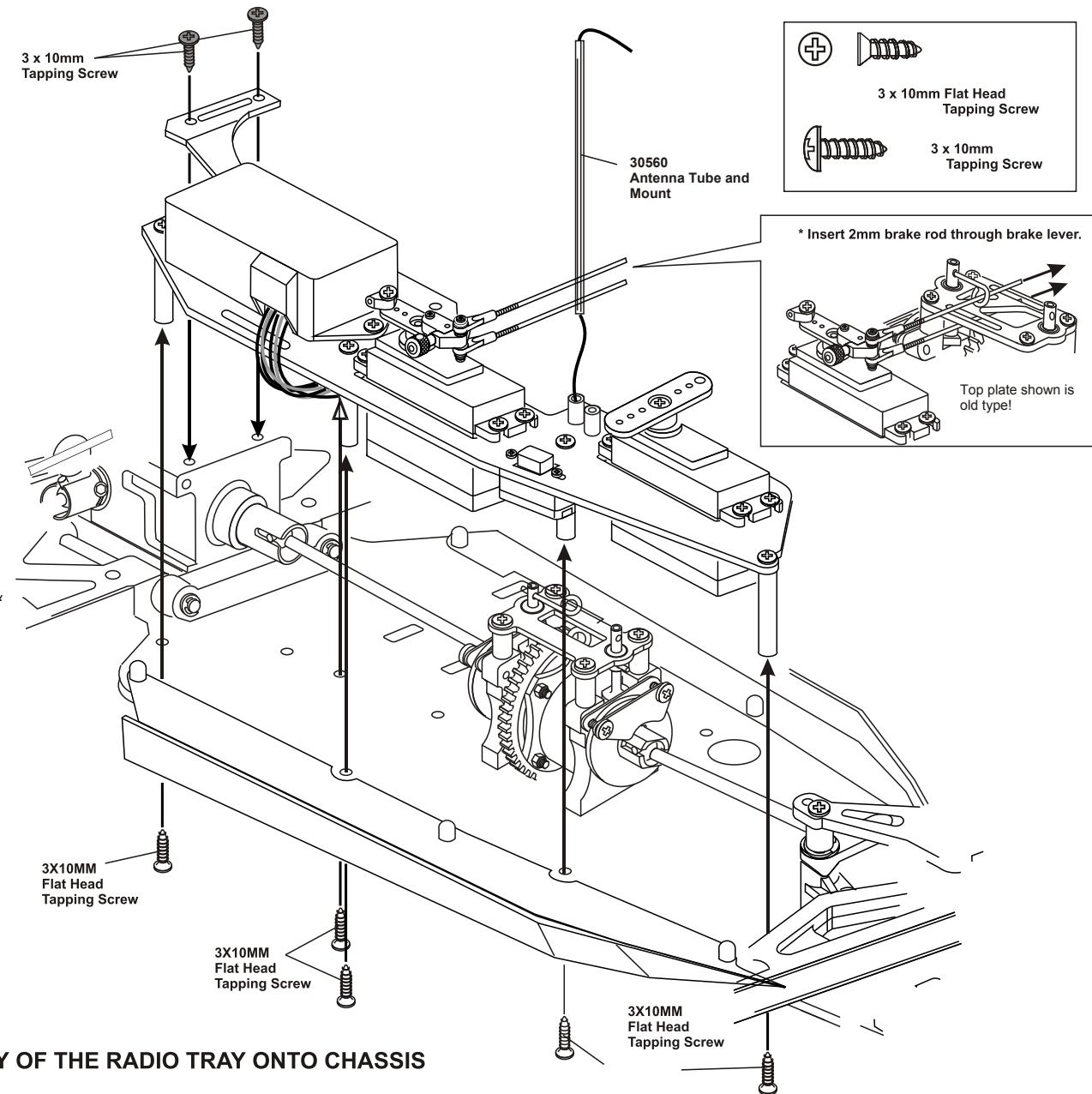
### ASSEMBLY OF THE BRAKE SYSTEM

( Use #30800 brake system plastic parts set. )



## ASSEMBLY OF THE SERVO AND REAR STIFFENER

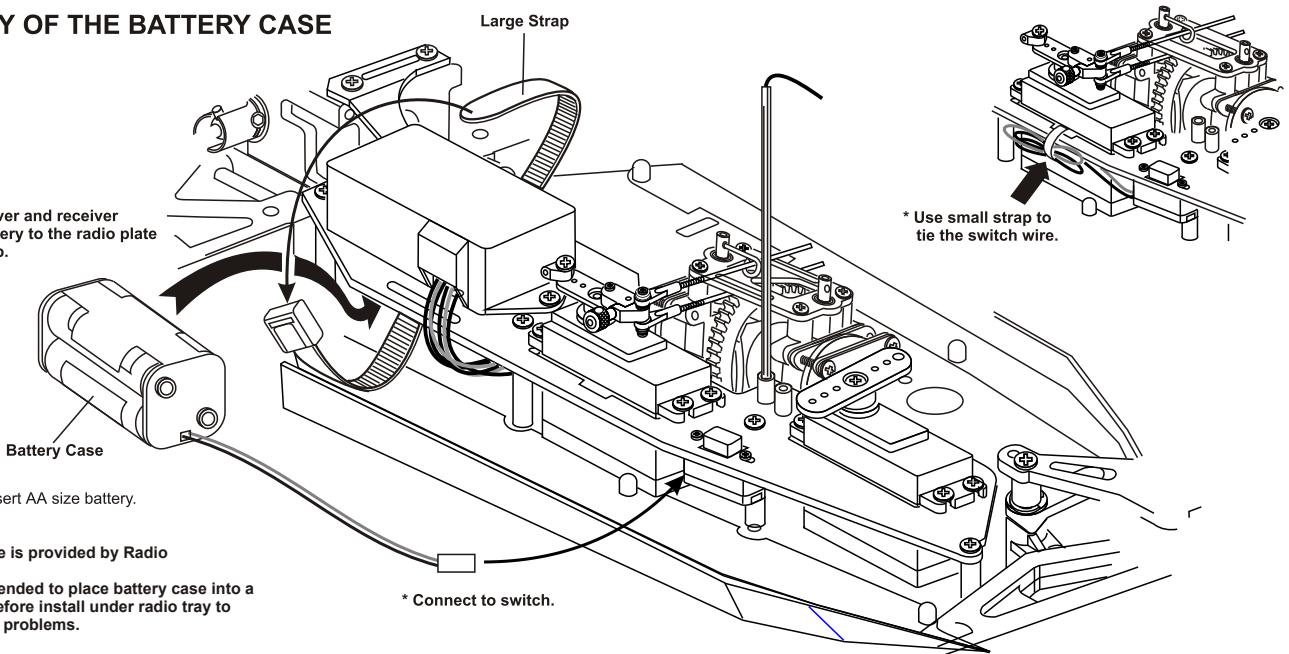




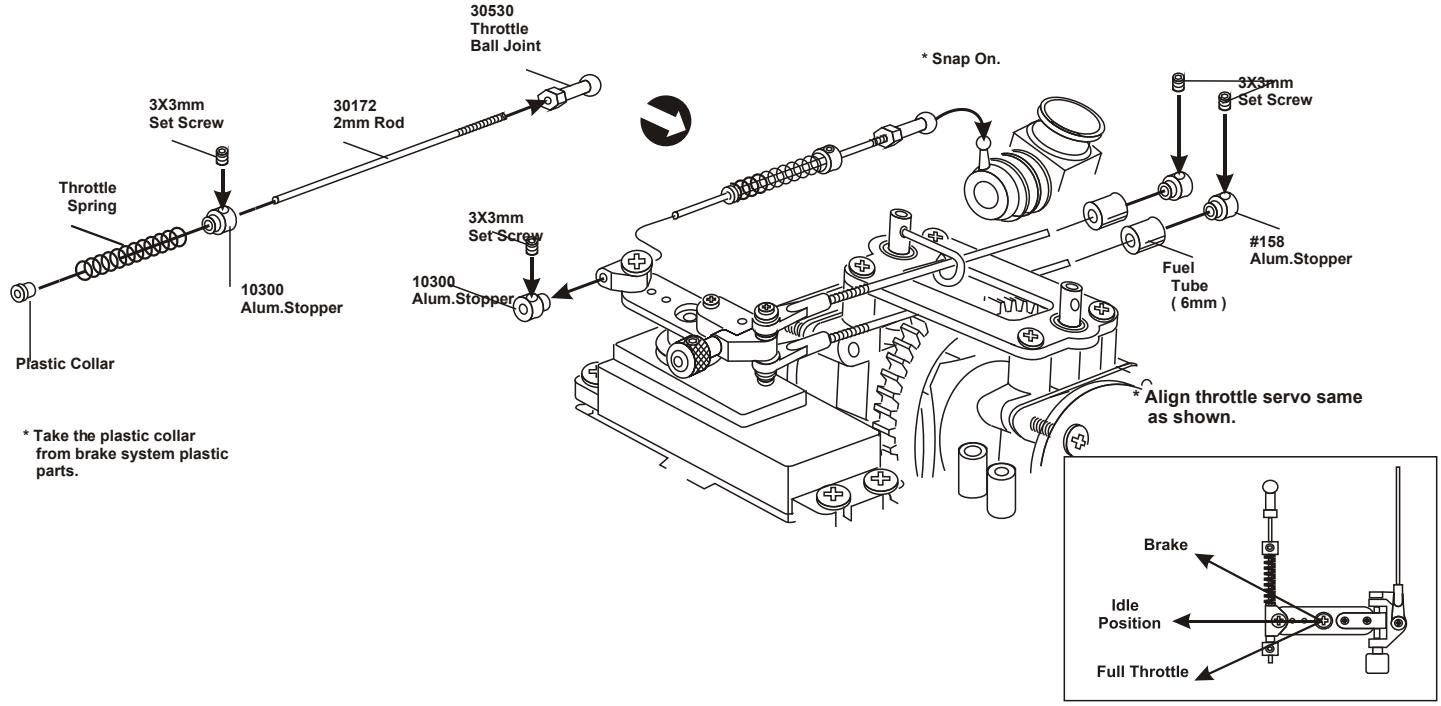
### ASSEMBLY OF THE RADIO TRAY ONTO CHASSIS

### ASSEMBLY OF THE BATTERY CASE

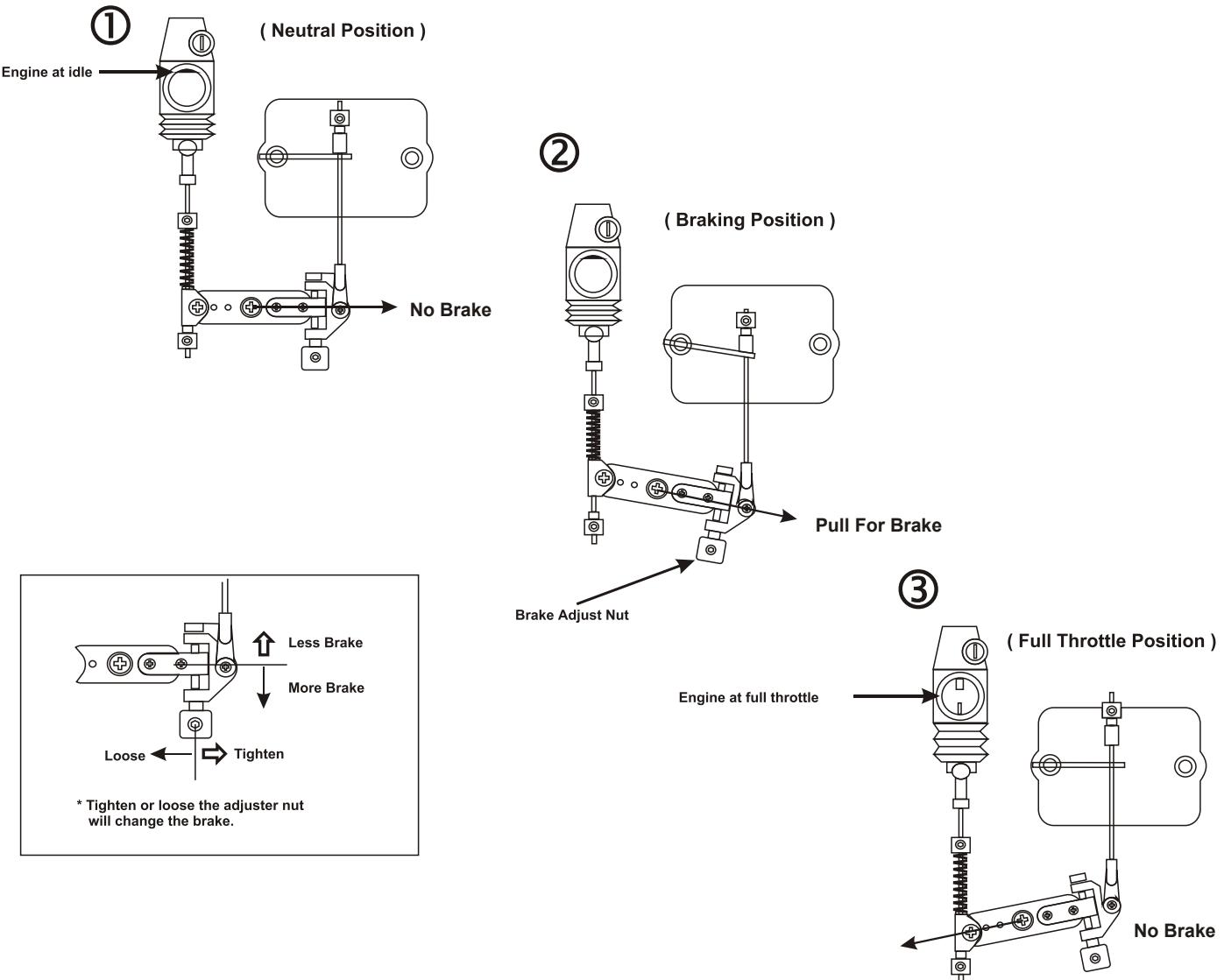
\* Fasten the receiver and receiver and receiver battery to the radio plate with largest strap.



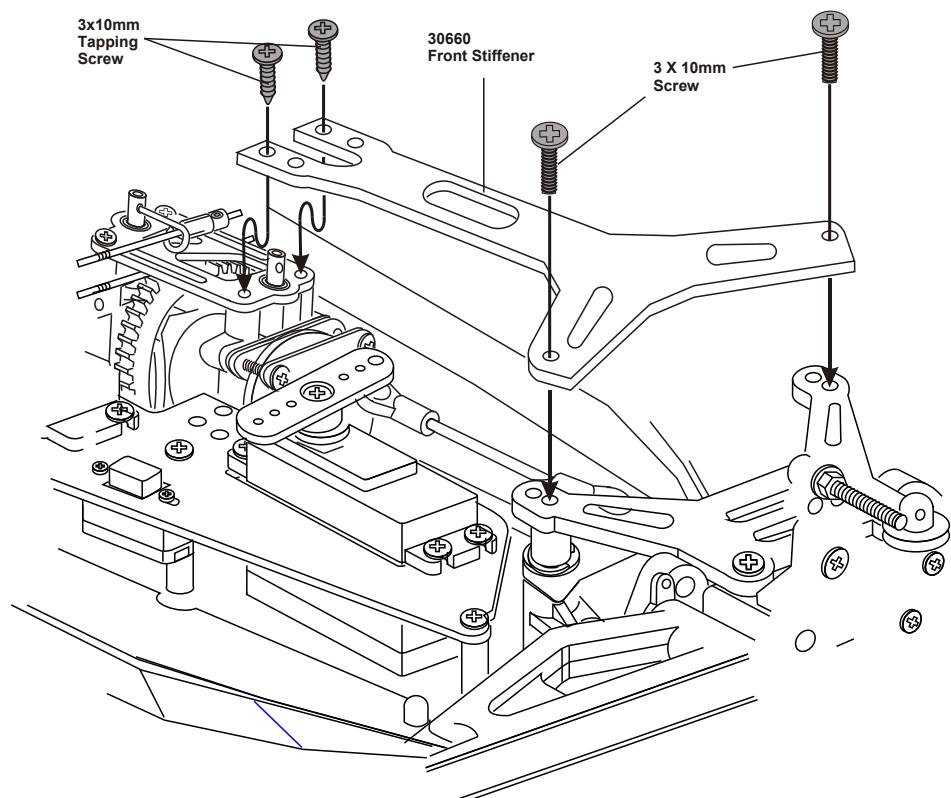
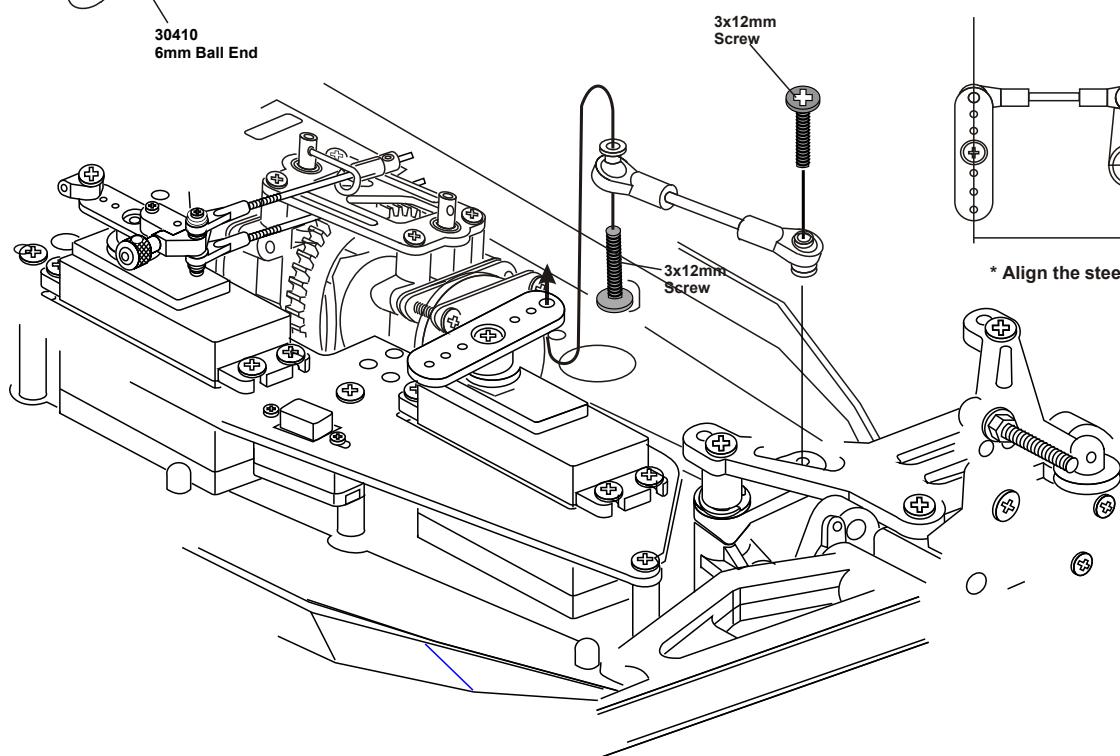
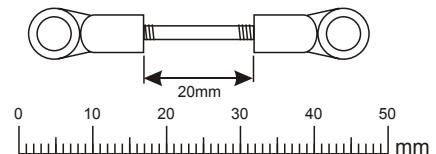
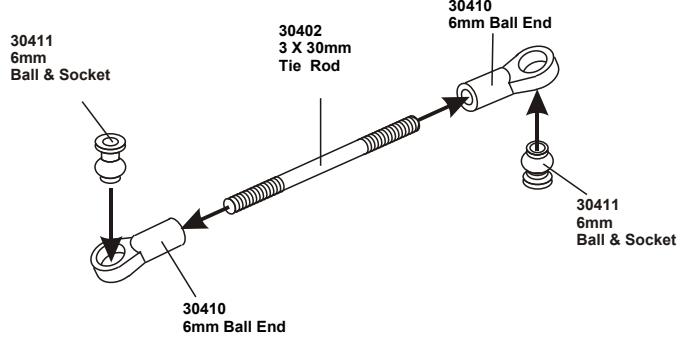
## ASSEMBLY OF THE THROTTLE LINKAGE SYSTEM



## ALIGN THROTTLE SERVO AND BRAKE SAME AS SHOWN

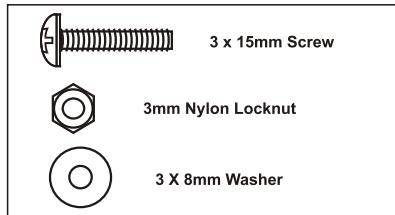
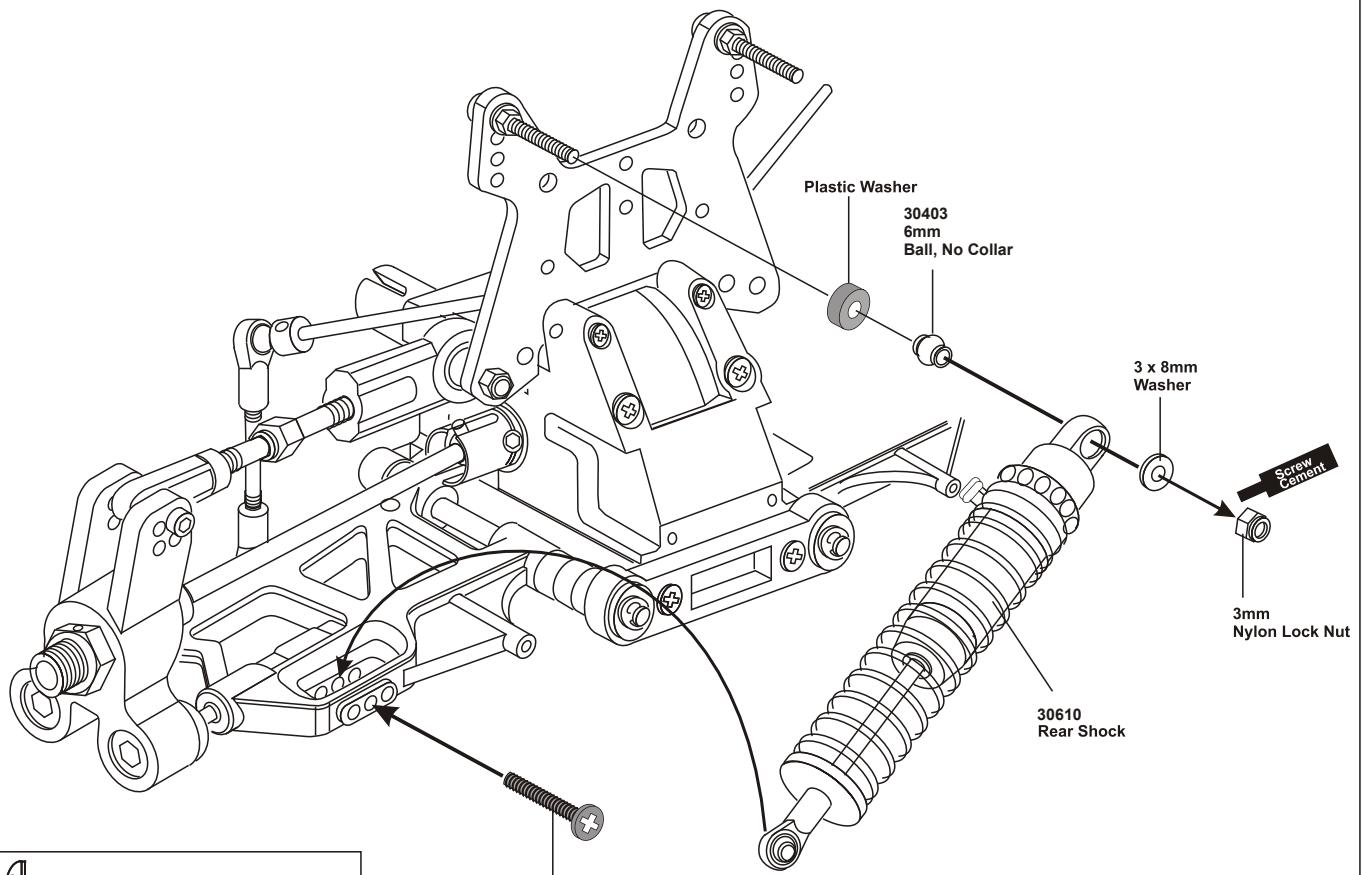


## ASSEMBLY OF THE FRONT STEERING ROD



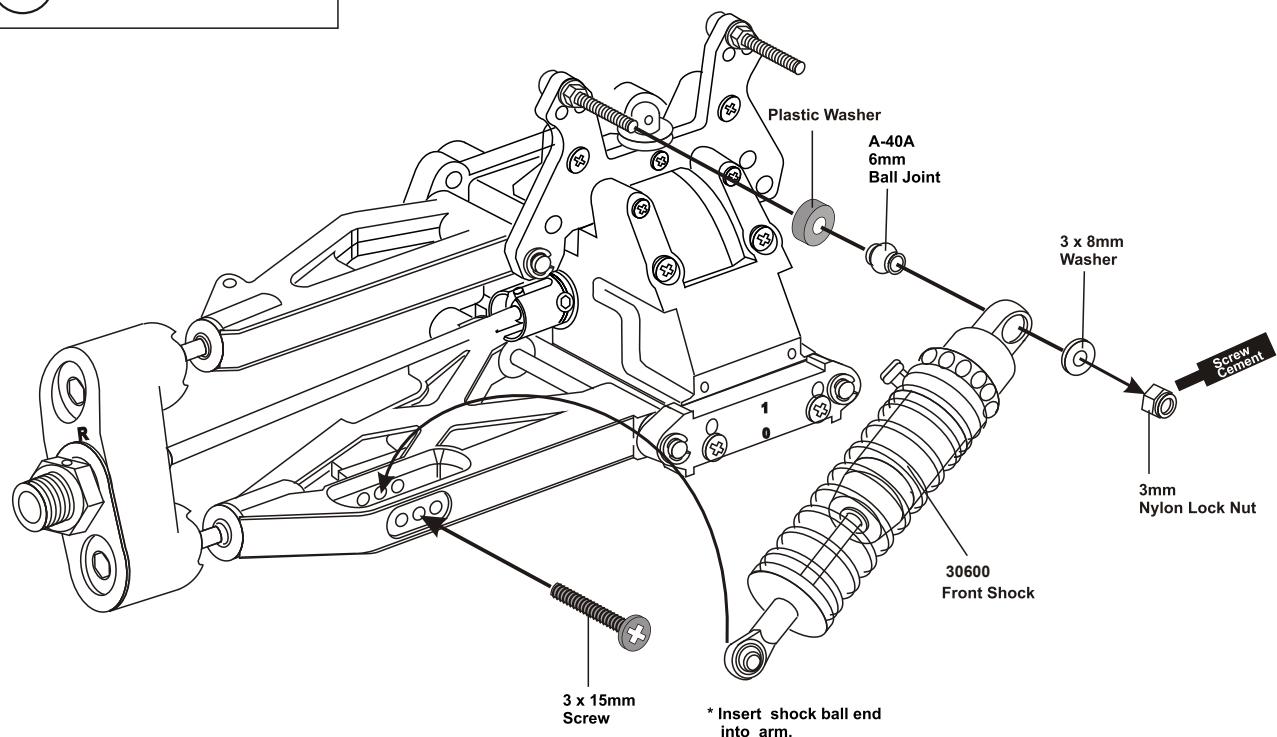
## ASSEMBLY OF THE FRONT AND REAR SHOCKS ONTOTHE SHOCK STAY

Assembly of the right and left hand side are the same.



\* Insert shock ball end into arm.

Assembly of the right and left hand side are the same.



## ASSEMBLY OF THE TIRES, FOAM INSERTS AND WHEELS

#86044 - Red  
 #86045 - White  
 #86046 - Lime  
 #86047 - Yellow  
 17mm 5-Star Wheels

#86091  
 Mini XX- Pin Tire



Always use tire foam donut when building tires.



\* Apply instant glue into the groove of the wheel.

WE RECOMMEND CA GLUE FOR RUBBER TIRES.

YOUR KIT COMES WITH PRE-GLUED TIRES, BUT WHEN TIRES ARE WORN YOU MUST REPLACE THEM. MAKE TIRE AND WHEEL SET AS SHOWN

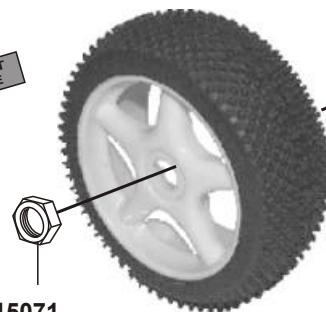
#15071  
 17mm Wheel Nuts

INSTANT GLUE

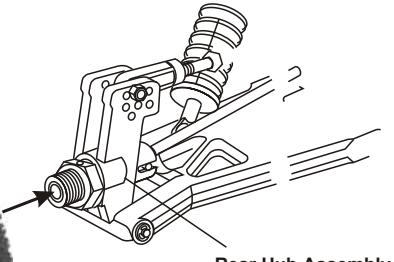


#15071  
 17mm Wheel Nuts

INSTANT GLUE



Front Knuckle Arm Assembly



Rear Hub Assembly

#86044 - Red  
 #86045 - White  
 #86046 - Lime  
 #86047 - Yellow  
 #86048 - Black  
 #86049 - Chrome  
 17mm 5-Star Wheels,  
 Two (2) Pairs per bag.

## STARTING OF THE ENGINE WITHOUT PULL START

### How to start the engine:

1. Turn on transmitter and then receiver.
2. Fill fuel tank with fuel bottle.
3. Connect 1.2V glow plug starter.
4. Start engine with 12V starter or starter box  
 ( Note the direction of the starter.)
5. After the engine be started, remove the 1.2V glow plug starter.

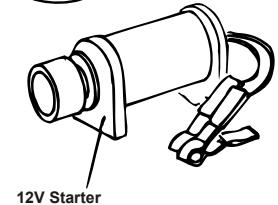
\* Follow the engine manufacturer instruction manuals regarding engine set-up, carburetor and maintenance.

\* To start the engine, use hand held starter motor or starter box.

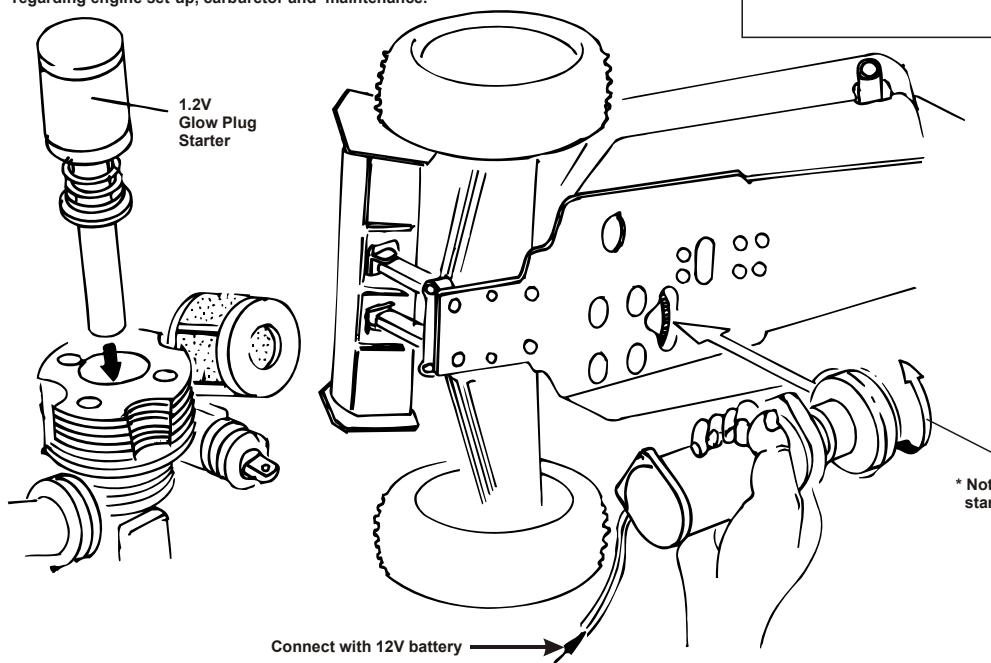


#10250  
 Starter Box

Rubber wheel turns engine flywheel.

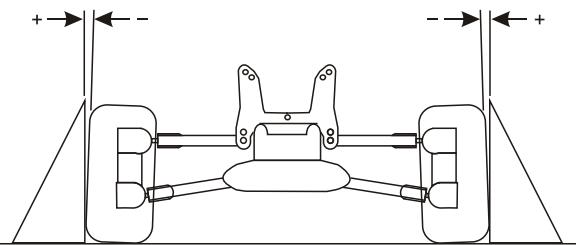


12V Starter



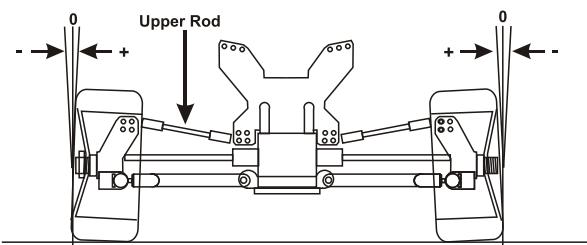
## SETTING GUIDE

### FRONT CAMBER ANGLE SETTING



Place the model car on flat surface. Raise the chassis to it's maximum clearance before the wheels leave the ground.  
 Adjust the length of the front and rear upper arms so that the wheels are right angle to the ground.  
 The front camber angle adjustment can be moving the pivot ball on the front knuckle arms, clockwise or anticlock.  
 (We suggest use zero degree for the front and one negative degree for the rear.)

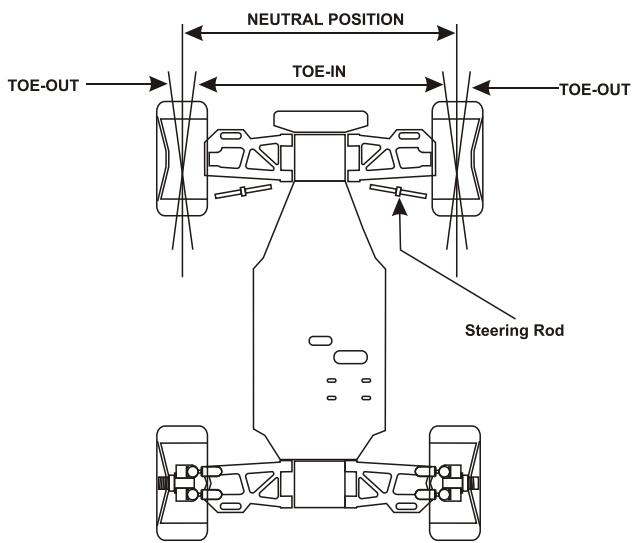
### REAR CAMBER SETTING



The rear camber adjustment can be made by changing the length of the upper rod.

Making the upper rod longer will make the camber positive.  
 Making the upper rod shorter will make the camber negative.

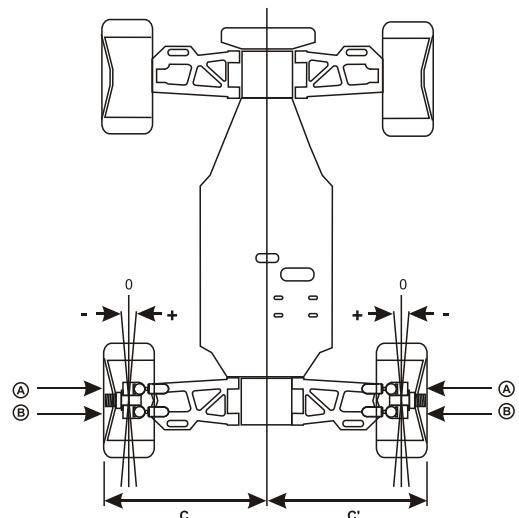
### FRONT TOE-IN AND TOE-OUT SETTING



Adjust the length of front steering rod to change the toe angle.  
 Making the tie rod longer will make the front tires become toe-in.  
 Response will be slower and will over steer.  
 Making the tie rod shorter will make the front tires become toe-out.  
 Response will be quicker and will under steer.

### THE REAR WIDTH AND TOE-IN SETTING

\* Use a 2.5mm hex wrench to adjust the rear track width and rear toe-in.

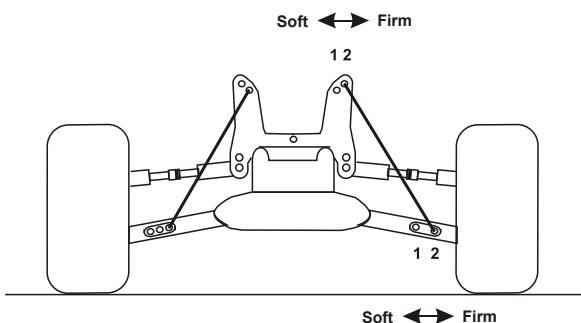


Adjust A and B to the same length.

Adjusting B longer will make the rear tires toe-in (Positive).

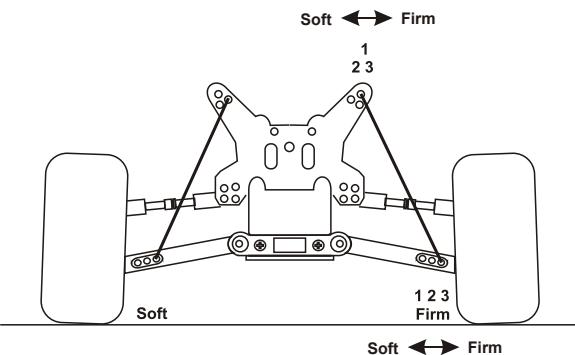
Adjusting A longer will make the rear tires toe-out (Negative).

### FRONT SHOCK ANGLE SETTING



Firm front suspension, less steering.  
 Soft front suspension, more steering.

### REAR SHOCK ANGLE SETTING



Firm rear suspension, over steering.  
 Soft rear suspension, under steering.

# PAINTING TIPS

For BUGGY



**STEP 1** Wash the inside of the body with detergent to remove any oil and dirt. Dry with lint free towel or a hair dryer. (Keep your hand clean.)



**STEP 2** Tools required are: Curved scissor , hobby knife and a quality masking tape. These can be purchase at your local hobby supplier.



**STEP 3** Use the curved scissors to trim the body to the guide lines provided on you body shell.



**STEP 4** Use masking tape on the inside of the body to mask out your design and windows prior to painting. Press down the edges!



**STEP 5** Paint the inside of the body! Use a spray color suitable for polycarbonate. (Paint the darkest color first.)



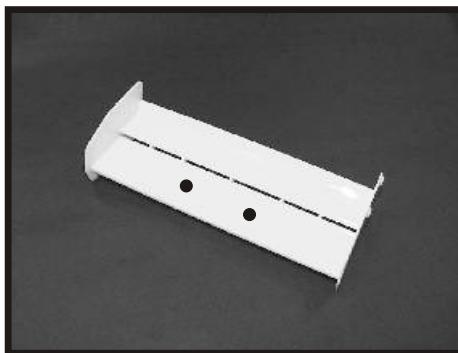
**STEP 6** Allow the paint to dry for at least an hour! Remove the masking tape and protection film from the outside of the body.



**STEP 7** Apply the decals to the outside of the body. We suggest use a hobby knife to cut them out.



**STEP 8** Use a hobby knife to cut holes for the fuel tank , engine and antenna tube . Make two 7mm holes for the body posts; one at the front and one at the rear.



**STEP 9** Drill two 7mm holes in nylon wing. Using the measurements provided in the instruction. Use the clip provided to secure the wing to the wing mount posts.



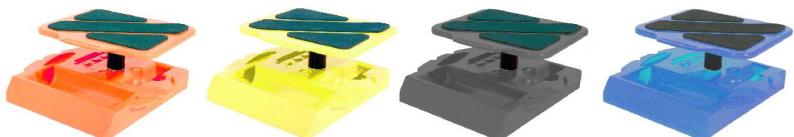
# 1:1 SCREW SHEET



	3 x 5mm Cap Screw		3 x 3mm Set Screw		M3 Nut
	3 x 10mm Cap Screw		3 x 5mm Set Screw		M4 Nut
	3 x 12mm Cap Screw		3 x 8mm Set Screw		M3 Nylon Locknut
	3 x 15mm Cap Screw		3 x 10mm Set Screw		M4 Nylon Locknut
	3 x 20mm Cap Screw		3 x 15mm Set Screw		M3 Flange Nut ( Steel )
	3 X 25mm Cap Screw		4 x 4mm Set Screw		2 X 6mm Washer
	3 x 5mm Tapping Screw		4 x 10 mm Set Screw		2mm X 7mm Washer
	3 x 8mm Tapping Screw		5 x 5mm Set Screw		3 X 8mm Washer
	3 x 10mm Tapping Screw		2 x 4mm Screw		5 X 9mm Washer
	3 x 12mm Tapping Screw		2 x 5mm Screw		2 x 6mm Screw
	3 x 15mm Tapping Screw		2 x 8mm screw		2 x 10mm Screw
	3 x 20mm Tapping Screw		2 x 25mm Screw		5 X 10mm Washer
	3 x 25mm Tapping Screw		3 x 5mm Screw		5 X 12mm Washer
	3 x 10mm Flat Head Tapping Screw		3 x 10mm Screw		2mm E-Ring
	3 x 15mm Flat Head Tapping Screw		3 x 15mm Screw		2.5mm E-Ring
	3 x 20mm Flat Head Tapping Screw		3 x 20mm Screw		3 mm E-Ring
	3 x 25mm Flat Head Tapping Screw		3 x 30mm Screw		4 mm E-Ring
	3 x 5 mm Flat Head Screw		4 x 6mm Flat Head Screw		5 mm E-Ring
	3 x 10 mm Flat Head Screw		4 x 10mm Flat Head Screw		6 mm E-Ring
	3 x 15mm Flat Head Screw		4 x 15mm Flat Head Screw		7 mm E-Ring
	3 x 20mm Flat Head Screw		4 x 20 mm Flat Head Screw		
	3 x 25mm Flat Head Screw		4 x 10mm Flat Head Tapping Screw		
	4 x 10mm Tapping Screw		4 x 16mm Flat Head Tapping Screw		
	4 x 15mm Tapping Screw		4 x 20mm Flat Head Tapping Screw		
	4 x 20 Tapping Screw		3 x 30mm Screw Pin ( Black )		
	4 x 25mm Tapping Screw		3 x 30mm Screw Pin ( Silver )		
	4 x 15mm Tapping Screw ( Small Head )				

## ENGINE BREAK-IN AND TUNNING

(BREAK-IN THE ENGINE BEFORE DRIVING THE CAR!)



OPTIONAL OFNA CAR STANDS IN 4 COLORS

- Choose a wide clear outdoor location with low dirt and dust.
- Set the car on box or holder with wheels off the ground.
- Turn on radio and car. Make sure throttle is at idle position.
- Fill fuel tank and set master engine needle.
- Prime fuel line and Heat glow plug before pull starting engine.
- When started, let engine fast idle for two tanks of fuel.

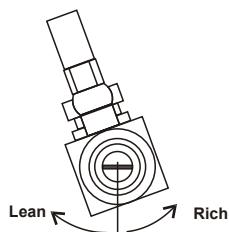


## TUNING AFTER BREAK-IN USING A FORCE .21 ENGINE

Close master needle by turning clockwise until it stops. Then open needle by turning counterclockwise 3 turns (rich setting).



Adjust low end needle for best throttle response. Use only small turns. From idle, give it full throttle, if throttle is slow lean out needle until good.



When running car, adjust carb with 1/8 clockwise turns, slowly leaner, until the top speed good. Check engine temp, if possible, for no more 250 degrees.



Adjust barrel stop so it will not close, accept for a small gap. This gap will be the idle setting. You will notice the idle will increase with a wide gap.



# OPERATING YOUR MODEL SAFELY

## Before Running

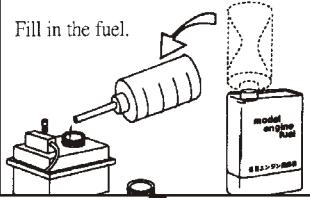
Your radio control model can move at high speed and therefore can cause injury to people or damage to property. It is your responsibility to operate your model safely.

For radio equipment, refer to the manual included with the radio.

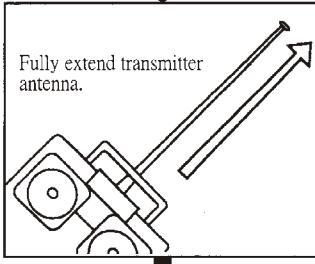
Check that all screws and nuts are tight.

If the model begins to operate by itself, there is someone else on your frequency. Do not try to operate your model under these conditions for it may go out of control.

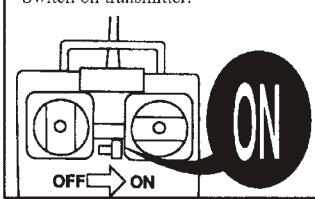
Fill in the fuel.



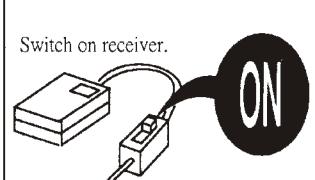
Fully extend transmitter antenna.



Switch on transmitter.



Switch on receiver.

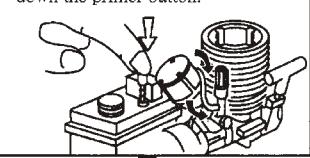


## Enging Start-up

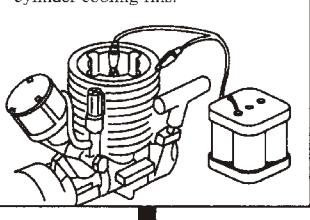
For engine use, refer to the manual included with the engine.



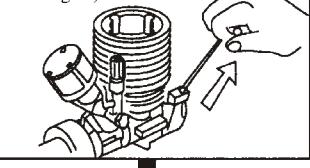
To prime the engine with fuel, press down the primer button.



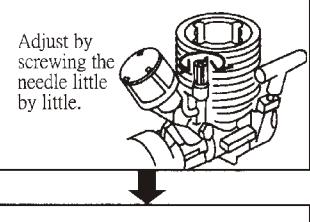
Attach one clip to the glow plug's end and the other clip to one of the cylinder cooling fins.



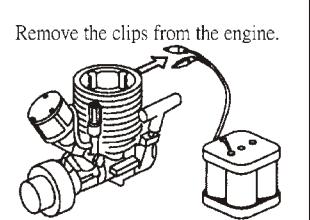
Quickly pull the starter rope (to start the engine).



Adjust by screwing the needle little by little.

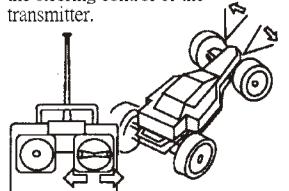


Remove the clips from the engine.

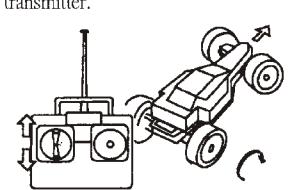


## While Running

Check that the model turns in proportion to the amount you move the steering control of the transmitter.

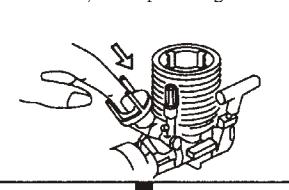


Check that the speed of the model changes in proportion to the amount you move the speed control of the transmitter.

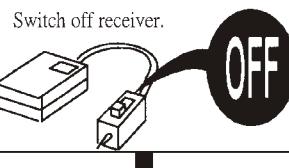


## After Running

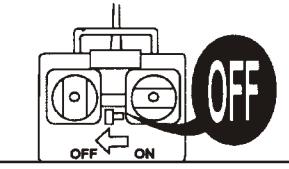
By pushing with your fingers the air cleaner, interrupt the engine



Switch off receiver.



Switch off transmitter.



Proper maintenance extends the life of the model.

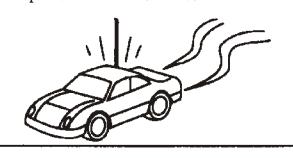
Use genuine parts.

## Cautions for Safety

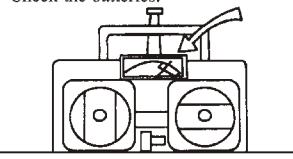
Do not run your model through water. This may cause rust or electrical problems.



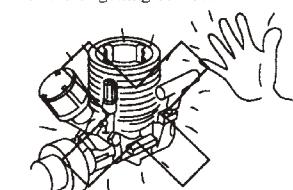
If model does not operate correctly stop it and find the cause.



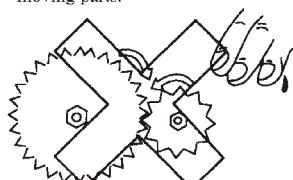
Check the batteries.



After each run, the model is hot. Beware of getting burned.



Keep hands and tools away from moving parts.



Never throw burning, gleaming or smouldering things into fuel cans even if these happen to be empty. This is very dangerous to life! If

